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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
OAKLAND DIVISION**

CELGARD, LLC,

PLAINTIFF,

v.

SHENZHEN SENIOR TECHNOLOGY
MATERIAL CO. LTD., ET AL.,

DEFENDANTS.

Case No. 4:19-cv-5784-JST

FIFTH AMENDED COMPLAINT

DEMAND FOR JURY TRIAL

[REDACTED VERSION]

Plaintiff Celgard, LLC (“Celgard”) files this Complaint against Defendants Shenzhen Senior Technology Material Co. Ltd. (“Senior-China”), Shenzhen Senior Technology Material Co. Ltd. (US) Research Institute (“Senior-California”), Sun Town Technology (“Sun Town”), Global Venture Development, LLC, Global Venture Development, Inc. (the Global Venture entities collectively as “Global Venture”) (all Senior entities and Global Venture referred to as “Senior” or

1 “Senior Defendants”), and Dr. Xiaomin (Steven) Zhang a/k/a Bin Wang (“Dr. Steven Zhang”) (all
2 defendants collectively, “Defendants”) and alleges as follows:

3 NATURE OF THE ACTION

4 1. This lawsuit concerns the brazen theft of Celgard’s trade secrets, proprietary
5 information, and confidential information by Defendants Senior-China, Sun Town, Global Venture
6 and Dr. Steven Zhang (the “Trade Secret Defendants”) – which includes a Chinese competitor and
7 an ex-employee who changed his name to conceal the Trade Secret Defendants’ unlawful conduct
8 – and who conspired together to hijack Celgard’s confidential, proprietary, and trade secret
9 information, copy Celgard’s products, and take business from Celgard. This lawsuit also concerns
10 infringement of Celgard’s patents by Defendants Senior-China, Senior-California, and Sun Town
11 (the “Patent Defendants”). This lawsuit further concerns Defendant Dr. Steven Zhang’s breach of
12 his nondisclosure agreement (“Nondisclosure Agreement”) with Celgard and Senior’s inducement
13 of that breach.

14 2. Celgard, a U.S. manufacturer, located in Charlotte, North Carolina, has invested
15 hundreds of millions of dollars into research and development for new battery technologies and is
16 an innovator in both coated and uncoated separators used in lithium-ion batteries. Through years
17 of investment, Celgard has worked hard to become a global leader in the development and
18 manufacture of separators used in lithium-ion batteries for consumer electronic (“CE”) devices and
19 electric vehicles (“EVs”). Celgard makes products in North Carolina, has facilities around the
20 world, and ships products globally.

21 3. In the past 20 years, rechargeable lithium-ion batteries became very popular for use
22 in varying applications. Lithium-ion batteries provide a power source with a higher energy density,
23 longer cycle life, and higher operational voltages with a relatively small size and light weight, as
24 compared to other rechargeable batteries. Separators are thin, electrically insulating sheets used
25 in batteries, and they sit between a battery’s electrodes—the anode and the cathode. The
26 separator is typically microporous to allow for ionic conduction (of lithium ions) while preventing
27 direct physical contact and electrical connection between the electrodes of the battery. Separators
28

1 are critical because the touching of the two electrodes typically results in a major electrical “short”
2 of the cell and possibly in catastrophic failure such as fire or explosion.

3 4. Celgard has a broad portfolio of highly engineered products used in this industry
4 and is one of the largest suppliers of separators to the lithium-ion battery industry. Celgard’s
5 separators are widely used in lithium-ion batteries for EVs, energy storage systems, power tools,
6 and CE devices, such as notebook computers, mobile telephones, and tablets. EVs include both
7 hybrid EVs, like the Toyota Prius, and full-EVs like Teslas. Celgard’s work in the lithium-ion
8 battery industry has been highly praised, and Celgard has received numerous accolades for its work
9 in the lithium-ion battery industry. Celgard’s work in EVs in particular has been praised by
10 numerous high-ranking officials, including former President Obama, former Secretary of
11 Energy, Steven Chu, and former Secretary of Labor, Hilda Solis.

12 5. Such innovation is costly. Celgard has invested hundreds of millions of dollars to
13 innovate its separators over the course of more than 30 years—through painstakingly long trial and
14 error, improving each step of each process, each component of each composition, and even
15 developing components of machinery used for the making of separators.

16 6. Celgard’s significant investment requires protection, and Celgard accordingly
17 relies on its trade secrets, as well as its copyrights, patents, and trademarks. Celgard also protects
18 the rest of its valuable information by keeping it private – treating it as confidential and proprietary
19 information and by having stringent policies in place to protect it. The trade secrets, proprietary,
20 and confidential information at issue in this dispute generally fall into at least one of these following
21 categories of Celgard’s separator operations: (1) Research and Development; (2) Procurement; (3)
22 Manufacturing Processes and Systems; (4) Assembly; (5) Quality Control and Testing; and (6)
23 Sales/Business.

24 7. Celgard has also diligently pursued and procured intellectual property rights
25 both in the United States and internationally. Celgard owns more than 200 United States and
26 international patents. For instance, Celgard invented a new separator for use in batteries and
27 patented its invention in United States Reissued Patent RE47,520 (the “’520 patent”), formerly
28 United States Patent 6,432,586, entitled “Separator for a High Energy Rechargeable Lithium

Battery.” The ’520 patent describes and claims a separator for a high-energy rechargeable lithium battery that addresses the significant problem of dendrite growth (irregular growth of lithium metal when it is plated onto an electrode during the charging of a battery between electrodes), as well as other problems. The ’520 patent is recognized as being foundational in the separator field and has been cited in over 50 patents and patent applications; it expired in April 2020. Celgard also owns United States Patent No. 6,692,867 (“the ’867 patent”), entitled “Battery Separator-Pin Removal” that is asserted in this action (collectively, the ’520 patent and the ’867 patent make up “the Asserted Patents”). A true and correct copy of the ’520 patent is attached hereto as **Exhibit A**. A true and correct copy of the ’867 patent is attached hereto as **Exhibit B**.

8. Celgard’s investment and protection of its investment has resulted in separators used in lithium-ion batteries that are safe and efficient and have undergone vigorous testing and optimization processes. As a result of its significant investment in developing its intellectual property, Celgard has become one of the top suppliers of separators for lithium-ion batteries in the world.

9. Senior-China, a Chinese manufacturer of separators, together with its agents, alter-egos and/or related entities Senior-California, Sun Town, and Global Venture embarked on a scheme to take over the global separator market with an intent to eclipse Celgard. Their strategy was not based on fair competition, independent research and development, or their own advances in technology. Instead, Senior’s strategy was to build a suite of products through unlawful theft and use of Celgard’s intellectual property, including Celgard’s patents, trade secrets, proprietary, and confidential information.

10. Senior accomplished its scheme by, among other things, hiring one of Celgard’s lead scientists from North Carolina, Dr. Steven Zhang, who became an expert on separator membranes, resins, and production, over the course of more than a decade at Celgard. Dr. Steven Zhang had access to and worked with Celgard’s most critical trade secrets, proprietary, and confidential information in North Carolina.

11. Dr. Steven Zhang was an integral part of Senior’s plans. [REDACTED]

[REDACTED]

1 [REDACTED]
 2 [REDACTED]
 3 [REDACTED]
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 [REDACTED].

8 12. When he resigned from Celgard, Dr. Steven Zhang told a Celgard employee that he
 9 was leaving for a position at General Electric. Celgard discovered in early 2019 that Dr. Steven
 10 Zhang was not at General Electric as he stated, but instead was the Chief Technology Officer of
 11 Senior-China. Celgard made this discovery when one of its employees noticed Dr. Steven Zhang
 12 in a photograph of Senior-China employees visiting Panasonic, one of Celgard's customers.
 13 Celgard also learned that Dr. Steven Zhang (at the request of Senior-China), adopted the name "Dr.
 14 Bin Wang" to conceal the truth and avoid detection by Celgard.

15 13. These revelations were a complete shock to Celgard. Celgard had asked Senior in
 16 the summer of 2018 whether Dr. Steven Zhang worked at Senior – and Senior had said no. In early
 17 2019, Dr. Steven Zhang called Celgard, stating he was not "technically" working for Senior and
 18 that he was not working on separator-related technology for Senior. He stated he was instead
 19 working on technology such as reverse-osmosis. None of this was true.

20 14. Celgard discovered recently that Dr. Steven Zhang's role at Senior involved work
 21 on separators – Dr. Steven Zhang (as Bin Wang) was working on improving Senior's separators
 22 regarding properties he had been heavily involved in while at Celgard. For example, a "Senior
 23 Material CTO Dr. Wang" gave a keynote speech on "technology and application of porous
 24 separator products" at the 2018 Pearl River Delta Future Automobile Supply Chain Innovation
 25 Forum in Shenzhen, China, on March 31, 2018.¹ His speech discussed changing the performance
 26 of dry process separators by extrusion and controlling stretching – some aspects of the separator

27 _____
 28 ¹ **Exhibit BBB.** Article from 2018, translated from Chinese, summarizing a speech given by Dr. Steven Zhang (going by Dr. Wang) on behalf of Senior regarding separators.

1 process that Dr. Steven Zhang has misappropriated from Celgard and used to create Senior's
2 separators.

3 15. Dr. Steven Zhang is also meeting and has met with potential customers regarding
4 Senior's battery separator technology. For example, [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 16. Senior-China has admitted that it colluded with Dr. Steven Zhang to change his
9 name in order to avoid Celgard's detection and, in reality, had named Dr. Steven Zhang (as "Bin
10 Wang") its Chief Technology Officer beginning in 2017. Further, Dr. Steven Zhang has been
11 working on Senior's separator technology and meeting with potential customers regarding battery
12 separator technology despite his assertions to Celgard to the contrary. At least some of Dr. Steven
13 Zhang's work for Senior has been performed in the United States, [REDACTED]

14 [REDACTED]

15 17. Dr. Steven Zhang has been working for Senior (through one or more of the Senior
16 Defendants) in some capacity since before his departure from Celgard in 2016. In particular, Dr.
17 Steven Zhang was being paid by Senior (through one or more of the Senior Defendants) while he
18 was still working for Celgard.

19 18. Dr. Steven Zhang and Senior (through one or more of the Senior Defendants)
20 planned for Dr. Steven Zhang to use proprietary, confidential, and trade secret information he took
21 from Celgard (he did not have such experience in the separator field before he worked for Celgard)
22 to create new and/or improved separators for Senior that had properties similar to or the same as
23 Celgard separators, in order to take away business from Celgard.

24 19. Celgard undertakes substantial precautions to protect its trade secrets, proprietary,
25 and confidential information, to make sure that they are not misused. It has numerous procedures
26 in place, including (and not limited to) restricting access of trade secrets, proprietary, and
27 confidential information to only its trusted employees, requiring such employees to execute
28 confidentiality agreements when their employment begins and to confirm their understanding of

1 continued obligations when they leave. Moreover, documents, policies and procedures within the
2 company constantly remind employees that the information they are coming into contact with is
3 confidential in nature, proprietary, and contains trade secrets that are the property of Celgard. A
4 more detailed discussion of Celgard's trade secrets is presented in paragraphs 104-112.

5 20. Senior targeted Dr. Steven Zhang, who was involved in core aspects of Celgard's
6 technology and business, to leave Celgard, to take a competing position with Senior, and disclose
7 and use Celgard's trade secrets, proprietary, and confidential information to Senior's benefit and
8 Celgard's detriment. Celgard believes Senior did this knowing that Dr. Steven Zhang was bound
9 by agreements with Celgard regarding confidentiality and/or non-solicitation and in complete
10 disregard of Celgard's valuable rights in its trade secrets, proprietary, and confidential information.

11 21. Dr. Steven Zhang has used and continues to use Celgard's trade secrets, proprietary,
12 and confidential information to help Senior create new and/or better separators with the same or
13 similar properties as Celgard's separators. After Dr. Steven Zhang joined Senior, key properties of
14 Senior's separators quickly changed, with the separators becoming similar to or identical to
15 Celgard's separators in a time frame not possible without use of Celgard's trade secrets, proprietary,
16 and confidential information.

17 22. Senior has incorporated Celgard's extremely valuable trade secrets, proprietary, and
18 confidential information at least in its resin technology, dry process technology, and coated
19 separators, which was gained through Dr. Steven Zhang.

20 23. Senior and Dr. Steven Zhang are using Celgard's trade secrets, proprietary, and
21 confidential information to design, develop, and produce many (if not all) of Senior's current
22 separators and, in the process, have taken away Celgard's customers through rock-bottom pricing.
23 As a result, Senior has been able to increase its global market share, taking Celgard's customers as
24 part of its increased share – increasing its global revenues by more than \$9.2 M in 2018, and even
25 more in 2019. In January 2019, Senior acquired a multi-million dollar contract with one of
26 Celgard's customers, Farasis Energy (Gan Zhou), Inc.. Celgard has suffered and will continue to
27 suffer great irreparable harm if Senior and Dr. Steven Zhang are allowed to continue using
28

1 Celgard's trade secrets, proprietary, and confidential information and to continue competing
2 unfairly in the market.

3 24. Senior's and Dr. Steven Zhang's misappropriation of Celgard's trade secrets,
4 proprietary, and confidential information threatens Celgard's reputation as an innovator in the
5 lithium-ion battery market and its market share that Celgard worked so hard to obtain. Senior's
6 Chinese production of separators having the same or similar properties as Celgard's separators
7 through the unlawful taking and using of Celgard's trade secrets, proprietary, and confidential
8 information is irreparably harming Celgard and will continue to do so if not enjoined.

9 25. Further, Senior-China, Senior-California, and Sun Town are using Celgard's
10 intellectual property to develop, make, use, import, offer to sell, and/or sell separators that infringe
11 the Asserted Patents. They sell infringing separators to battery manufacturers, which then
12 incorporate the infringing separators into their lithium-ion batteries for sale in the United States and
13 throughout the world. As one example of the harm caused by Senior-China, Senior-California, and
14 Sun Town, Celgard and Farasis Energy (Gan Zhou), Inc. had a supply agreement for Celgard to
15 supply its separators to at least Farasis Energy (Gan Zhou), Inc., which was effective through March
16 31, 2019 (the "2018 Supply Agreement"). In January 2019, during the term of the 2018 Supply
17 Agreement, Farasis Energy (Gan Zhou), Inc. told Celgard it was ceasing purchases from Celgard,
18 it refused to pay for specialized separator already made for it, and announced it was going to
19 purchase Senior-China's separators instead. In January, 2019, Farasis Energy (Gan Zhou), Inc. and
20 Senior-China entered into an arrangement for the supply of infringing separators. As a result,
21 Celgard lost millions of dollars in business per year. Celgard has lost additional significant sales
22 to other battery manufacturers, and suffered harm as a result, in amounts to be proven at trial.

23 26. Accordingly, Celgard has suffered and will continue to suffer great harm if Senior
24 is allowed to continue infringing Celgard's patents if all Defendants are allowed to continue
25 misusing and misappropriating Celgard's trade secrets, proprietary, and confidential information
26 and if Dr. Steven Zhang is allowed to continue breaching his agreement with Celgard and Senior
27 is allowed to continue to induce it.
28

27. Sun Town and Global Venture are agents and/or alter-egos of Senior-California and/or Senior-China. Sun Town and Global Venture are located in the same building as at least Senior-California and have overlapping owners or managers.

28. Senior-California is a subsidiary of Senior-China, and Senior-California and Senior-China have overlapping personnel.

THE PARTIES

29. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

30. Celgard is a limited liability company organized and existing under the laws of Delaware, with its principal place of business located in Charlotte, North Carolina. Celgard is directly owned by Polypore International, LP, which is headquartered in Charlotte, North Carolina, and is indirectly owned by Asahi Kasei Corporation, which is headquartered in Japan.

31. Celgard is a U.S. manufacturer, has a broad portfolio of highly engineered products used in the battery industry, and is one of the largest suppliers of separators to the lithium-ion battery industry. Celgard has grown to be a global leader in the development and production of specialty microporous membranes, including separators used in rechargeable or secondary lithium-ion batteries for CE devices and EVs.

32. Senior-China is a corporation organized and existing under the laws of China, with its principal place of business in Shenzhen, Guangdong, China. Senior-China manufactures separators that (1) are made with trade secrets, proprietary, and other confidential information misappropriated from Celgard, and (2) infringe at least Claim 12 of the '520 Patent and at least Claims 17-18 of the '867 Patent. According to its website, Senior-China also has a place of business in Fremont, California through at least Senior-California.

33. Senior-California is Senior-China's U.S. subsidiary incorporated in the State of California, is registered to do business in the State of California, and has an office and research and development facility in the State of California, located at 44049 Fremont Blvd., Fremont, California, 94538.

1 34. Sun Town is incorporated in the State of California, is registered to do business in
2 the State of California, and has an office located at 44063 Fremont Blvd., Fremont, California,
3 94538.

4 35. At least as late as May 16, 2019, Sun Town was selling or offering to sell Senior-
5 China's infringing separators to at least Celgard's consultant in California.

6 36. Global Venture Development, Inc. is incorporated in the State of California, is
7 registered to do business in the State of California, and also has an office located at 44063 Fremont
8 Blvd., Fremont, California, 94538.

9 37. Global Venture Development, LLC is a limited liability company organized and
10 existing under the laws of the State of California, is registered to do business in the State of
11 California, and also has an office located at 44063 Fremont Blvd., Fremont, California, 94538.

12 38. Dr. Steven Zhang (a/k/a "Bin Wang") is the Chief Technology Officer of Senior-
13 China. Dr. Steven Zhang previously worked for Celgard in North Carolina and resided in North
14 Carolina, including at 12125 Humboldt Dr., Charlotte, North Carolina, 28277 and/or 11202 Wheat
15 Ridge Rd., Charlotte, North Carolina, 28277.

16 39. Dr. Steven Zhang owns property in North Carolina, including one or both of the
17 houses located at 12125 Humboldt Dr., Charlotte, North Carolina, 28277 and/or 11202 Wheat
18 Ridge Rd., Charlotte, North Carolina, 28277.

19 40. Dr. Steven Zhang has received mail in North Carolina and has at times received mail
20 at an office located at 44063 Fremont Blvd., Fremont, California, 94538.

21 41. Senior-China, Senior-California, Sun Town, Global Venture, and Dr. Steven Zhang
22 have conspired and are conspiring together, among other things, to develop, make, use, import,
23 offer to sell, and/or sell the accused infringing products, including coated separators and uncoated
24 separators that are manufactured by Senior-China to companies and institutions throughout the
25 United States, including California. Further, Senior-China, Senior-California, Sun Town, Global
26 Venture and Dr. Steven Zhang have conspired and continue to conspire together to produce,
27 distribute and sell separators in violation of Celgard's property rights and in unlawful competition
28

with Celgard. The named Senior entities have overlapping personnel and are interrelated in their business dealings. For example:

- a. Dr. Steven Zhang—the former Celgard employee who absconded with Celgard’s technology and confidential, proprietary and trade secret information—is currently Chief Technology Officer of Senior-China, and had an address at the same location as Senior-California. Specifically, from April 2019 until August 2019, Dr. Steven Zhang was located at 44063 Fremont Boulevard, Fremont, CA 94538. Dr. Steven Zhang was previously employed by Sun Town.
- b. Dr. Steven Zhang’s listed phone number (510-573-6021) and business address (44063 Fremont Boulevard) are the same as those for Global Venture.
- c. Sun Town and Global Venture are located at the same address as Dr. Steven Zhang and are in the same building as Senior-California.
- d. Dr. Steven Zhang was employed by Celgard until October 2016. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- e. [REDACTED]
[REDACTED] as part of his job responsibilities.
- f. Sun Town and Global Venture have connections with Senior-China and with Senior-California and are companies to which Senior-California’s assets have been transferred.
- g. Sun Town lists Mei-Guang Chen as its Finance Manager on its Statement of Information filed with California’s Secretary of State. Mei-Guang Chen also is Finance Manager for Senior-California.
- h. Senior-China’s website says it has set up a Research and Development center in California and lists a telephone number for Senior-California. When this number is

called, a pre-recorded message plays, saying “Hello, and thank you for calling Sun Town Technology.”

i. Sun Town’s Chief Executive Officer is Jian Chen. Jian Chen is also a director of other entities located at the same location as Senior-California and Dr. Steven Zhang, such as Global Venture, Global PC Direct, GRJS LLC, and ST Cyberlink, also known as Global PC Direct. Jian Chen also holds himself out as an agent for Senior-China and for Senior-California.

j. [REDACTED] y.

k. Senior-China’s annual reports from the Shenzhen Stock Exchange show that Senior-China set up Senior-California in January 2017 (around the time Dr. Steven Zhang defected from Celgard) with registered capital of \$1M. The registered business nature of Senior-California is research and development and sales. The 2018 report shows that Senior-China invested approximately \$900 K to Senior-California.

l. Senior-California began dissolving in 2019. Prior to dissolving, Senior-California transferred its assets to Global Venture and Sun Town for the purpose of Sun Town developing, making, using, importing, offering to sell and/or selling Senior-China’s infringing separators (and separators made with Celgard’s trade secrets, proprietary, and confidential information) throughout the United States, including California.

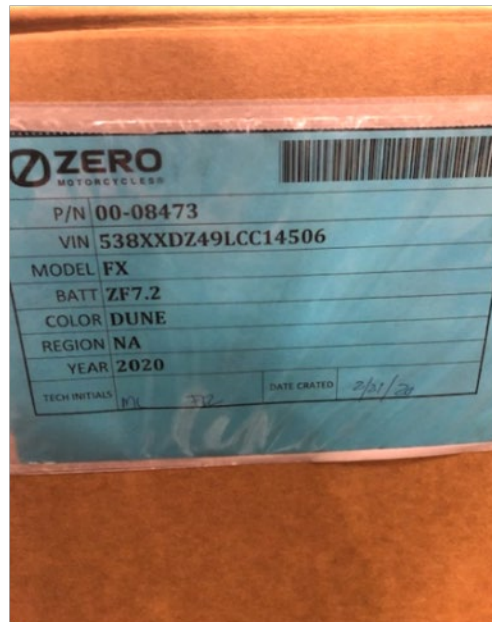
42. Based on at least the above, Sun Town, Global Venture and Senior-California are agents of Senior-China, affiliates of one another, and/or alter egos of one another.

43. Celgard respectfully submits that the factual allegations set forth herein concerning the relationships between Senior and Dr. Steven Zhang have evidentiary support or will likely have evidentiary support after a reasonable opportunity for further investigation or discovery.

44. Senior sells infringing separators knowing that they will be used in the United States. Indeed, infringing separators from Senior have been found in the United States. One such customer

of Senior's that incorporates infringing separators is Farasis.² Farasis does not make public or readily available any specific names or model numbers of its lithium-ion batteries or its separators.³ Indeed, Farasis' website does not list any specific products, much less any model numbers or specific names of its products. However, a recently purchased Zero Motorcycles' motorcycle in the United States confirms that it includes a Farasis lithium-ion battery and that the Farasis lithium-ion battery includes a Senior separator.

45. For example, a 2020 motorcycle by Zero Motorcycles, identified as model FX contains a Farasis lithium-ion battery, identified as ZF7.2:

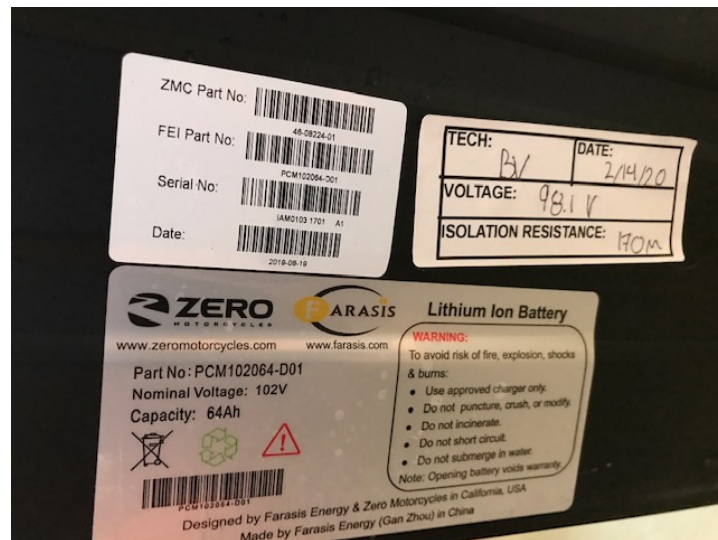


46. As can be seen from the below photograph of the label of the lithium-ion battery in this motorcycle, the label states that it is "designed by Farasis Energy & Zero Motorcycles in

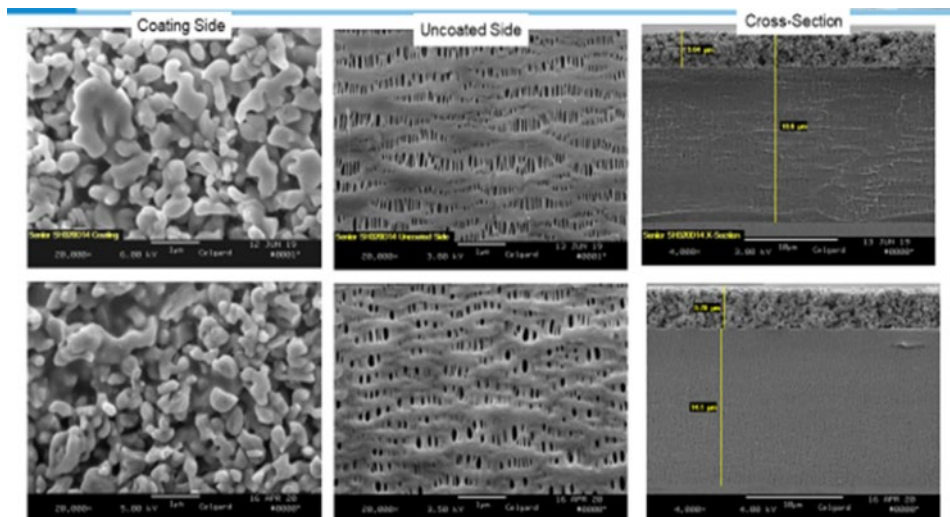
² The term "Farasis" refers collectively to the following entities: Farasis Energy USA, Inc. and Farasis Energy, Inc. (collectively, "Farasis-US"), Farasis Energy (Gan Zhou), Inc. and Farasis Energy (Gan Zhou) Co., Ltd (collectively "Farasis-China"). Celgard previously asserted the Asserted Patents against Farasis. Those parties have now settled.

³ However, Farasis' website in 2012 listed several lithium-ion batteries identified by the following part numbers, such as IMR-18650-P11, IMR-18650-P15, IMR-18650-P20, IMR-18650-P22, IMR-18650-P24. *See* web.archive.org/web/20120618061338/http://www.farasis.com/productdetail.html (last accessed on July 29, 2020), attached hereto as **Exhibit P**. Also, a datasheet from 2011 and 2018 reveals an additional lithium-ion battery, as Cell Type: IMP06160230P25A used in Farasis battery packs for Zero Motorcycles in the U.S. **Exhibit Q**.

California, USA” and that it is made by “Farasis Energy (Gan Zhou) in China.” The Farasis lithium-ion battery is further identified as “FEI Part No. PCM102064-D01.”



47. Although the separator located in the Farasis lithium-ion battery contains no identifier or model number, Celgard’s testing of the separator reveals that it is a ceramic coated separator containing polypropylene. For example, the Scanning Electron Microscope (“SEM”) images below compare Senior’s SH320D14 infringing separator (top row) to the separator inside the Farasis lithium-ion battery, FEI Part No. PCM102064-D01 (bottom row). Based on a comparison of at least these SEM images, the Farasis lithium-ion battery in Zero Motorcycles’ motorcycle contains an infringing separator. Additional comparisons of the separator in this



1 ZeroMotorcycles' motorcycle to Senior's separators and Celgard's separators further demonstrate
2 that the separator in the Zero Motorcycles' motorcycle is an infringing separator.

3 48. Further, through discovery, Celgard has now learned that Farasis uses a different
4 separator in Farasis' batteries, [REDACTED].

5 49. Further, based on discovery, [REDACTED]
6 [REDACTED]
7 [REDACTED].

8 50. Further, Farasis has been developing, making, using, importing, offering to sell, and
9 selling batteries (through September, 2021) [REDACTED]
10 [REDACTED]

11 51. Additional evidence that Senior's infringing separators are used in the United States
12 is the supply agreement between Farasis Energy (Gan Zhou), Inc. and Senior-China to use Senior-
13 China's infringing separators in Farasis Energy USA, Inc.'s and Farasis Energy Inc.'s lithium-ion
14 batteries.

15 52. Indeed, Senior's relationship with Farasis is well-known with one article stating:
16 "Senior Technology's key domestic clients include lithium battery manufacturers Farasis Energy
17 and Guoxuan High-Tech Power Energy." **Exhibit R.**

18 53. Lithium-ion batteries, such as [REDACTED]
19 [REDACTED]
20 [REDACTED] and ZF7.2 and FEI Part No. PCM102064-D01 in Zero Motorcycles' FX model,

21 that include infringing Senior separators, [REDACTED], and/or other same or similar
22 separators, which were made, used, offered for sale and/or sold to companies and institutions
23 throughout the United States, including the State of California, contain infringing separators.

24 54. Additionally, the lithium-ion batteries and separators used therein often do not have
25 specific names or model numbers because they are not off-the-shelf products. Instead, as discussed
26 below, the separator manufacturer, such as Senior-China, collaborates with the battery
27 manufacturer and the vehicle manufacturer to design a separator and lithium-ion battery specifically
28 for the vehicle manufacturer based on their requirements. The label of the lithium-ion battery in the

1 photograph above illustrates this point, stating that the Farasis battery was “designed by Farasis
2 Energy & Zero Motorcycles in California, USA.”

3 55. Senior’s sales of infringing separators have been significant. For example, based on
4 importation records, Farasis Energy (Gan Zhou), Co., Ltd., in early 2020, shipped 25,940 lbs. and
5 600 cartons of lithium-ion batteries to Farasis Energy USA, Inc. in California. **Exhibit C.** Similarly
6 in June 2019, Farasis Energy (Gan Zhou), Inc. shipped 25,355 lbs. and 600 cartons of lithium-ion
7 batteries to Farasis Energy, Inc. in California. **Exhibit D.** Farasis Energy (Gan Zhou), Inc. has also
8 shipped 53,306 lbs. and 600 cartons of its lithium-ion batteries directly to Zero Motorcycles at its
9 headquarters in Scotts Valley, California. **Exhibit E.**

10 56. Senior sampled and qualified the infringing separators with Farasis-US (the Farasis
11 R&D facility).

12 57. Senior employees also visited the Farasis-China manufacturing facilities where the
13 infringing Senior separators are used to make lithium-ion cells or batteries.

14 58. Senior used Senior-China, Senior-California, Global Venture, and/or Sun Town’s
15 resources to visit Farasis-US facilities and to participate in meetings in the United States with
16 Farasis, as well as BYD, Saft America, Inc., Zero Motorcycles, LG Chem, and the like.

17 59. Senior’s US R&D is in Fremont, CA (city of Senior-California and Sun Town) and
18 Farasis’s US R&D is in Hayward, CA (Farasis-US), which are in close proximity to each other.

19 60. Senior’s Director of Sales and Marketing (based in Fremont, CA) attended the
20 Advanced Automotive Battery Conference (AABC) and/or the International Battery Seminar &
21 Exhibit in the US in 2019.

22 JURISDICTION AND VENUE

23 61. Celgard repeats and incorporates by reference all prior allegations of this Complaint
24 as if fully set forth herein.

25 62. This Court has subject matter jurisdiction of the action pursuant to the patent laws
26 of the United States, 35 U.S.C. § 1 *et seq.* and pursuant to 28 U.S.C. §§ 1331 and 1338(a) because
27 Celgard’s claims against each Patent Defendant for patent infringement is a federal question. This
28 Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1332, 1367,

1 and 18 U.S.C. § 1836(c) because Celgard’s claim for trade secret misappropriation against the
 2 Trade Secret Defendants under the Defend Trade Secret Act is a federal question. This Court also
 3 has supplemental jurisdiction over the other claims pursuant to 28 U.S.C. § 1367 because they are
 4 so related to the original claim that they form part of the same case or controversy. Further, the
 5 matter in controversy in this action exceeds the sum or value of \$75,000, exclusive of interest and
 6 costs, and is between citizens of different States and/or foreign states.

7 63. This Court has personal jurisdiction over Sun Town, Senior-California, and Global
 8 Venture because each is a California company, registered to business in California, with a principal
 9 place of business in this State and District.

10 64. This Court has personal jurisdiction over Senior-China and Dr. Steven Zhang as
 11 they have consented to this Court’s jurisdiction with respect to this action,⁴ and based on their
 12 contacts with California. This Court also has personal jurisdiction over Senior-China pursuant to
 13 Fed. R. Civ. P. 4(k)(2).

14 65. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b)-(c) and
 15 1400(b) because each Patent Defendant has committed acts of patent infringement complained of
 16 herein in this District, and thus a substantial part of the events or omissions giving rise to the claims
 17 alleged herein occurred in this District, and because Patent Defendants are each subject to this
 18 Court’s personal jurisdiction with respect to the claims alleged herein. Pursuant to 28 U.S.C.
 19 §1400(b), Senior-California and Sun Town, reside in California, have committed acts of
 20 infringement, and have a regular and established place of business in this District. Venue is proper
 21 in this judicial district pursuant to 28 U.S.C. §1391(c) because (1) Senior-California, Sun Town,
 22 and Global Venture each have a regular and established place of business in this District , (2)
 23 Senior-China and Dr. Steven Zhang have consented to venue in this District, (3) Senior-China and
 24 Dr. Steven Zhang have held out they are not residents in the United States, so may be sued in any
 25

26
 27 ⁴ E.g., Dkt. No. 589 at 3 (“Senior-China and Dr. Zhang have now consented to jurisdiction in this
 28 district . . .”), 6 (same); Dkt. No. 487 at 2 (“Senior-China and Dr. Steven Zhang have now both
 consented to personal jurisdiction before this Court.”), 5 (“Dr. Steven Zhang, [and] Senior-China
 have consented to personal jurisdiction in California . . .”), 7 (same).

judicial district where any defendant is subject to the court's personal jurisdiction, and (4) there is no district in which this action may otherwise be brought.

FACTUAL ALLEGATIONS

A. Celgard and its Technology

66. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

67. Celgard has a broad portfolio of highly engineered separators, including those that practice Celgard's patents, and is one of the largest suppliers of separators to the lithium-ion battery industry. Celgard has invested hundreds of millions of dollars into research and development for new battery separator technologies and is an innovator in both coated and uncoated separators.

68. Celgard long has been recognized as a leading innovator in the battery separator market. Celgard's technology, its reputation, its market leadership, and its customer loyalty comprise a significant portion of Celgard's value.

69. Celgard's customers are predominantly companies that supply batteries (whether individual cells, modules, or battery packs) to manufacturers that produce CE devices, EVs, and energy storage systems, such as Farasis. EVs include both hybrid-EVs, like the Toyota Prius, and full-EVs, like Teslas.

70. In the past 20 years, rechargeable lithium-ion batteries became very popular for use in varying applications. Lithium-ion batteries provide a power source with a higher energy density, longer cycle life, and higher operational voltages with a relatively small size and light weight, as compared to other rechargeable batteries.

71. Lithium-ion batteries are typically constructed with a thin porous insulating film (the separator) that allows the battery to operate but prevents the electrodes (cathode and anode) from contacting each other. Liquid electrolyte fills the pores in the separator and voids in the electrodes. When the battery is discharged, positively charged lithium ions flow in the electrolyte from the anode, through the separator pores, to the cathode. This process leaves a negative charge of electrons on the anode. When charging, the flow is reversed. In a rechargeable (secondary)

1 lithium battery, the charge and discharge states are repeated during use. The process of charging
2 and discharging the battery is referred to as one cycle.

3 72. A typical lithium-ion battery cell includes a positive electrode and a negative
4 electrode that is divided by a separator or film, with the electrodes typically being made of
5 compatible metal materials. The electrodes and film are often soaked in (and reside in) a liquid or
6 liquid-like electrolyte. Lithium ions move through the electrolyte between the two electrodes when
7 the battery is discharging its energy (e.g., when the battery is plugged into a device and energizing
8 the device) and also when the battery is charging (e.g., when the battery is plugged into a charging
9 station). The separator prevents direct contact between the electrodes. This is critical because the
10 touching of the two electrodes typically results in a “short” of the cell and possibly in catastrophic
11 failure such as fire or explosion. Therefore, by providing a physical barrier between the electrodes,
12 the separator facilitates safety and continued operation of the battery.

13 73. Separators made of various materials have been used over the years. As batteries
14 have become more sophisticated, separator function also has become more demanding and
15 complex.

16 74. Lithium-ion batteries present certain unique safety challenges due to their chemical
17 design and composition. One such challenge is lithium dendrite growth—the irregular growth of a
18 metal on an electrode during charging or discharging. Over repetitive charge-discharge cycles,
19 dendrites may grow out from the electrode’s surface in a needle-like structure. As the battery is
20 cycled further, the dendrites may continue to grow, penetrating the separator and making direct,
21 physical and electrical contact with the opposite electrode. When such contact is made, an electrical
22 short circuit of the battery may occur. This may cause the battery to malfunction. In certain
23 scenarios, it may cause the battery’s internal temperature to rise quickly and uncontrollably, leading
24 to thermal runaway and catastrophic failure such as fire or explosion.

25 75. The battery industry has long identified dendrite growth (and associated electronic
26 shorting) as a significant safety issue. Prior to the invention disclosed in the ’520 patent, however,
27 solutions to the problem were varied and achieved mixed results.
28

1 76. Through extensive trial and error, Celgard created separator technology that
2 addressed the safety and durability problems in lithium batteries. For example, Celgard discovered
3 that adding a ceramic composite layer (or coating) to the base layer of the separator improved the
4 safety and durability of lithium batteries, along with the compositions, tolerances for the
5 components of those compositions, machinery used to make the coated separators, and tolerance
6 ranges for making superior separators in the process of making those separators. Celgard has
7 likewise spent extensive time, care, and expense, in developing its uncoated separators, generating
8 the same types of ranges, tolerances, and components as it does with its coated separators. Through
9 its many years of work in this area, Celgard determined what tolerances for every step of production
10 and each component of compositions gave and maintained the level of safety and durability of the
11 batteries that has given Celgard its competitive edge in the market.

12 77. Senior and Dr. Steven Zhang have incorporated Celgard's extremely valuable trade
13 secrets, proprietary, and confidential information at least in, for example, its resin technology, dry
14 process technology, and coated separators, which was gained through Dr. Steven Zhang.

15 78. Celgard invented the separator technology described and claimed in the '520 patent
16 to address safety and durability problems in lithium batteries. The separator claimed in claim 12 of
17 the '520 patent, for example, includes, among other things, (1) a ceramic composite layer (or
18 coating) including a mixture of inorganic particles and a matrix material, and (2) a polyolefinic
19 microporous layer. The claimed separator's ceramic composite layer combines inorganic particles
20 within a matrix material to create a ceramic composite layer adapted to at least block dendrite
21 growth, which prevents electrical shorts, improving the safety and commercialization of high-
22 energy lithium batteries. The claimed separator's polyolefinic microporous layer is adapted to block
23 ionic flow between the anode and cathode at an elevated temperature such as during thermal
24 runaway. This shutdown functionality further improves battery safety.

25 79. The '520 patent is based on a reissue application that was filed in 2015, issued in
26 2019, and expired on April 10, 2020. The '520 patent is a reissue of the 6,432,586 patent that was
27 filed in 2000 and issued in 2002. Celgard is the owner by assignment of all right, title, and interest
28 in and to the '520 patent, including the right to sue for past damages and injunctive relief.

1 80. The Patent Office has confirmed the validity of claim 12 of the '520 patent after
2 three *inter partes* review challenges. A true and correct copy of U.S. Patent No. 6,432,586 ("the
3 '586 patent"), the predecessor patent to the '520 patent, complete with *Inter Partes* Review
4 Certificate is attached hereto as **Exhibit F**. On June 3, 2019, the validity of claim 12 was yet again
5 confirmed in the Notice of Allowance in the reissue application that matured into the '520 patent.

6 81. Another of Celgard's inventions is an innovative way to remove a pin from a battery
7 assembly. In the manufacture of high energy, lightweight batteries, for example, secondary lithium
8 batteries, the battery assembly, *i.e.*, an anode tape and a cathode tape sandwiching a separator tape,
9 is wound about one or more pins (or cores or mandrels). To begin winding of the assembly, the
10 separator tape is taken up on the pin, and then the anode and cathode tapes are fed to the pin. Upon
11 completion of the winding, the battery assembly is removed (or withdrawn) from the pin. If the
12 assembly (*i.e.*, the separator tape) sticks on the pin during withdrawal, the assembly "telescopes"
13 and must be rejected. Such rejects increase the cost of the battery manufacturing process. In
14 response to this problem, Celgard invented various separator methods and separators having
15 improved pin removal properties, *i.e.*, separators that will not cause telescoping when the battery
16 assembly is removed from the pin. These inventive separators and methods are described and
17 claimed in the '867 patent.

18 82. Celgard is the owner by assignment of all right, title, and interest in and to the '867
19 patent, including the right to sue for past damages and injunctive relief. The '867 patent was duly
20 and legally issued by the United States Patent and Trademark Office on February 17, 2004, with
21 all claims valid.

22 83. Celgard has invested in significant intellectual property protection and vigorously
23 enforces its patents. Celgard has been forced to enforce its intellectual property rights against other
24 similar infringers, which ended in favorable outcomes to Celgard.

25 84. For example, in 2013, Celgard filed suit against Sumitomo Chemical Co., Ltd., in
26 the United States District Court for the Western District of North Carolina for infringement of the
27 '520 patent (or its predecessor, the '586 patent). The suit was resolved pursuant to agreement of
28

1 the parties. The suit and its resolution were subject to at least national, industry-focused media
2 coverage as shown in **Exhibit G** attached hereto.

3 85. In 2014, Celgard filed a patent infringement suit against LG Chem Ltd. and LG
4 Chem America, Inc. (collectively, “LG Chem”) in the United States District Court for the Western
5 District of North Carolina for infringement of the ’520 patent (or its predecessor, the ’586 patent).
6 The suit was resolved pursuant to agreement of the parties after significant district court litigation
7 and patent office proceedings. The suit and its resolution were subject to at least national, industry-
8 focused media coverage as shown in **Exhibit H** attached hereto.

9 86. In 2014, Celgard filed suit against SK Innovation Co., Ltd. (“SK Innovation”) in the
10 United States District Court for the Western District of North Carolina for infringement of the ’520
11 patent (or its predecessor, the ’586 patent). The suit was resolved pursuant to agreement of the
12 parties after significant district court litigation and patent office proceedings. The suit and its
13 resolution were subject to at least national, industry-focused media coverage as shown in **Exhibit**
14 **I** attached hereto.

15 87. In December 2018, Celgard filed a patent infringement suit against MTI Corporation
16 in the United States District Court for the Northern District of California for infringement of the
17 ’520 patent (or its predecessor, the ’586 patent). *Celgard, LLC v. MTI Corporation*, No. 5:18-cv-
18 07441-VKD (N.D. Cal. filed Dec. 11, 2018). The suit against MTI has settled and has been the
19 subject of at least national and industry-focused media coverage. *See, e.g., Exhibit J.*

20 88. In May 2019, Celgard filed a patent infringement suit against Targray in the United
21 States District Court for the Northern District of California for infringement of the ’520 patent (or
22 its predecessor, the ’586 patent). *Celgard, LLC v. Targray Technology International Inc.*, No. 5:19-
23 cv-02401-VKD (N.D. Cal. filed May 2, 2019). The suit against Targray has settled and has been
24 the subject of at least national and industry-focused media coverage. *See, e.g., Exhibit K.*

25 89. Most recently, Celgard filed a trade secret misappropriation action against Senior-
26 China in the United Kingdom (“UK”) and, on July 30, 2020, the UK Court entered a preliminary
27 injunction against Senior-China, stating that “Celgard has adduced sufficient evidence to establish
28 a serious issue to be tried that its trade secrets have been used in the development and manufacture

1 by Senior of battery separators since the time of Dr. Steven Zhang's arrival as its employee."
2 **Exhibit S** at ¶ 59. On August 6, 2020, the UK Court issued its Penal Notice, ordering that "the
3 Defendant whether acting by itself or its directors, officers, employees, servants or agents or
4 otherwise howsoever shall not make, offer, put on the market, import, export or store for any of
5 those purposes the Battery Separator in the United Kingdom." *Id.*

6 90. At least as of February 25, 2019, Celgard provided notice to Senior-China about its
7 violation of Celgard's intellectual property, including infringement of the '520 patent (or its
8 predecessor, the '586 patent). At least as of September 16, 2019, Senior-China was on notice of its
9 infringement of the '520 Patent and the '867 Patent when Celgard brought a lawsuit against Senior-
10 China for infringing these patents.

11 **B. Market for Separators**

12 91. When customers select a separator for use in a battery, they often face competing
13 issues. For example, a battery design that has a high energy density might have a poor cycle life.
14 One of the most important competing issues is between energy density and safety. Particularly for
15 batteries with high capacity (e.g., those used in EVs), a defect in a separator can lead to an unsafe
16 event—such as a battery fire or explosion. Accordingly, while a battery designer might want to use
17 a particularly thin separator to maximize energy density, a thin separator might be more susceptible
18 to an unsafe condition than a thicker or coated separator.

19 92. Today, ceramic coated separators are increasingly common in the rechargeable
20 (often large format) lithium batteries used in EVs and for other high-power applications. Much of
21 the plug-in EV market in the U.S. has adopted ceramic coated separator technology. As the EV
22 market continues to grow, an increasing percentage of manufacturers have turned to ceramic coated
23 separators as a means to improve battery safety, battery cycle life, and vehicle driving range.

24 93. The market for plug-in EVs that use lithium-ion batteries, specifically, is rapidly
25 expanding with an increasing number of makes and models available for sale. Vehicle
26 manufacturers are rapidly increasing the number of available plug-in EVs as demand grows.

27 94. In the midst of this growth, vehicle manufacturers continue to explore options for
28 increasing the per-charge EV driving range, often using, or making plans to use, a ceramic coated

1 separator to achieve this objective. The success behind the growth of EVs is significantly correlated
2 with longer per-charge driving range—a critical consumer criterion. The longer per-charge driving
3 ranges now available in today’s EVs are supported by very high energy density lithium-ion battery
4 cells. The characteristics of these types of lithium-ion battery cells typically lead cell design
5 engineers to specify ceramic coated separators to help address a balance between performance (*i.e.*,
6 longer per-charge driving range) and safety.

7 **C. Battery Separator Supply Chain and Competition**

8 95. Tiered supply chains are the rule in the EV and CE industries, where the final
9 product consists of many complex components and sub-assemblies that must comply with
10 stringent quality, manufacturing, and business standards. Celgard is an important member of the
11 EV or CE tiered supply chain. As such, it typically supplies components to a battery supplier, who
12 in turn supplies components directly to an original equipment manufacturer (OEM) that produces
13 CE devices, EVs, or energy storage systems.

14 96. Competition for battery sales does not occur on a unit-by-unit basis. Rather, battery
15 manufacturers compete to have EV or CE manufacturers or OEMs use their batteries for an entire
16 product line. Supplying batteries and battery parts for EVs and CEs requires extensive testing and
17 validation among the separator supplier, the battery manufacturer, and the EV or CE manufacturer.
18 Once selected, the battery manufacturers “design in” a particular separator for that “generation”—
19 *i.e.*, that model’s production life cycle—which, for EVs, lasts from two to five years, or more.
20 Because many batteries are designed to last for years, and because the ramifications of a battery
21 fire or explosion are so dire, OEMs tend to stick with a battery design, and a particular separator,
22 for a long time. The successful battery manufacturer (and separator manufacturer) thereby procures
23 a blocking position that immunizes it from competition for several years.

24 97. Celgard’s experience in the EV market provides a good illustration. Celgard often
25 collaborates with its customers and potential customers to provide highly-engineered and
26 specifically-designed separators for each customer or potential customer’s requirements.
27 Typically, the selling process for a separator requires a series of meetings between the
28 separator supplier, the battery producer, and sometimes the OEM, where requirements are

1 discussed, and sample separators are provided and evaluated. These sample separators may be
2 tested as isolated units, or they may be built into working batteries. Following testing, the
3 separator manufacturer may modify the separator, and the new separator and batteries built
4 with it are retested. This iterative process can continue for months or even years, and it can
5 continue through the approval process, and even can be used to make continuous
6 improvements to the product after it is launched.

7 98. Over time, relationships are developed among the supplier, the tiered customer and
8 the OEM at many levels during this process. Supplying components for an EV creates a familiarity
9 and confidence that yields an “incumbency effect” that can carry over from one design cycle to the
10 next. “Incumbency effect” increases the likelihood that the tiered suppliers and OEM will continue
11 to harvest their initial investment through future contracts. Furthermore, through its experience in
12 the EV industry, Celgard has learned that OEMs are more likely to look to their current suppliers
13 for future designs, rather than to suppliers to which the OEMs have not already awarded business,
14 and other OEMs are more likely to select suppliers they know. All of this results in a strong
15 competitive advantage for existing suppliers.

16 **D. The Emerging Market in China for Separators**

17 99. The Chinese government is seeking to have China become the global leader in
18 lithium-ion battery technology, as well as the leader in EV technology. To facilitate these
19 goals, the Chinese government provides subsidies for EVs, which in turn has caused demand
20 for lithium-ion batteries to grow. According to market research, there are over 75 competing
21 Chinese companies that are positioned to provide lithium-ion batteries with ceramic coated
22 separators with many more attempting to enter the market, including international
23 manufacturers that must either meet strict standards or partner with a Chinese company. To
24 accommodate the increased demand for battery cells (and separators), Chinese manufacturers are
25 adding large numbers of production lines for separators, raising the total manufacturing capability
26 to over 1 billion square meter (m²) per year of separators.

27 100. Receipt of subsidies from the Chinese government is conditioned on meeting certain
28 requirements, including a minimum energy density for the batteries installed in the EV. Thus, as

1 with other EV manufacturers, Chinese EV manufacturers have continued to explore options for
2 increasing the per-charge driving range of EVs.

3 101. With large production capabilities and government subsidies, Chinese battery
4 manufacturers (like Farasis) and Chinese separator manufacturers (like Senior-China), can
5 significantly discount the prices of their products, including separators and batteries.

6 102. One such company that manufactures coated and uncoated separators, including
7 separators in China and significantly discounts prices for its separators is Senior-China.

8 **E. Senior's Violation of Celgard's Intellectual Property Rights**

9 103. As a result of its considerable investment in its intellectual property, Celgard has
10 gained a distinct, commercial and economic advantage in the separator market that has resulted in
11 substantial sales and market share for its products. Senior, on the other hand, sought to usurp
12 Celgard's hard-earned success through the misappropriation of its trade secrets, proprietary, and
13 confidential information, as well as by making, using, selling, offering for sale, and/or importing
14 of products that infringe Celgard's patents.

15 **1. Celgard's Trade Secrets, Proprietary, and Confidential Information**

16 104. Celgard has expended significant time, effort, and expertise to develop a variety of
17 valuable trade secrets, proprietary, and confidential information related to its separator technology.

18 105. Celgard's trade secrets, proprietary, and confidential information apply to the
19 designing, developing, manufacturing, finishing, distributing, and selling of its separators.
20 Celgard's trade secrets, proprietary, and confidential information relate to, for example, its resin
21 technology, its dry process technology and include manufacturing methods, techniques, standard
22 operating conditions ("SOC"), standard operating procedures ("SOP"), and processes, materials,
23 performance issues (such as safety, temperature, battery life), suppliers, preferred resins, inspection
24 and testing, resin properties, precursor properties, internal specifications, technical service, custom
25 equipment, operating procedures, optimization of parameters, design, selling and marketing its
26 products, and obtaining contracts and business with its customers.

1 106. Celgard’s trade secrets, proprietary, and confidential information further include
2 know-how relating to raw materials, development and production, as well as know-how used to
3 obtain supply and reduce costs throughout the supply chain.

4 107. Based on its extensive research and development, product testing, trials, and other
5 investments and experience, Celgard has acquired trade secrets, proprietary, and confidential
6 information regarding how to effectively manufacture separators to improve the safety of batteries,
7 efficiently meet customer demand, and perform quality testing to ensure its products meet customer
8 specifications and industry standards. Celgard also has acquired know-how on its combination of
9 materials and optimization of properties. The development of this information has been acquired
10 over more than twenty years and could not be reverse engineered without someone going through
11 the same trial and error progression at every step in the composition and manufacturing process –
12 including developing which parts of the process can be adjusted but still result in product that meets
13 defined specifications.

14 108. In general terms, Celgard’s trade secrets, proprietary, and confidential information
15 relate to, for example, (1) proprietary manufacturing methods and equipment used for its resin
16 technology and dry process technology; (2) proprietary processes, materials, and performance
17 properties (such as, safety, temperature, battery life) for its base films and separators, (3) the
18 operating conditions (including ranges and sweet spots) and tolerances, and materials to use to
19 create a separator with specific, chosen properties (e.g., Gurley, pore size, pore size distribution,
20 puncture strength, shrinkage amount, tensile strength, and uniformity of the separator material), (4)
21 the corrections or adjustments required in the manufacturing process and materials to achieve
22 separators that meet product specifications or correct issues (including, resin selection, what to do,
23 and what not to do), (5) proprietary standard operating conditions (“SOC”) and standard operating
24 procedures (“SOP”); (4) proprietary preferred resins, inspection and testing, resin properties,
25 precursor properties; (5) proprietary suppliers and obtaining contracts and business with its
26 customers; (6) proprietary information used to produce new or improved products, obtain and
27 maintain supply, and reduce costs throughout the supply chain (including technical service,
28

1 technical support, resins, processes, equipment, tradeoffs, advantages, and disadvantages); and (7)
2 combinations and/or sub combinations thereof.

3 109. A non-exhaustive list of certain Celgard's trade secrets, proprietary, and confidential
4 information follows, which describe, illustrate and/or embody Celgard's trade secrets, proprietary,
5 and confidential information:

- 6 ■ [REDACTED]
- 7 [REDACTED]
- 8 ■ [REDACTED]
- 9 [REDACTED]
- 10 ■ [REDACTED]
- 11 [REDACTED]
- 12 ■ [REDACTED]
- 13 [REDACTED]
- 14 ■ [REDACTED]
- 15 [REDACTED]
- 16 [REDACTED]
- 17 ■ [REDACTED]
- 18 [REDACTED]
- 19 [REDACTED]
- 20 ■ [REDACTED]
- 21 [REDACTED]
- 22 [REDACTED]
- 23 ■ [REDACTED]
- 24 [REDACTED]
- 25 [REDACTED]

26 To be clear, the above list is meant to be exemplary only, and nothing in this list should be
27 considered limiting on Celgard's trade secrets, proprietary, and confidential information. Similarly,
28 Celgard's trade secrets, confidential, and proprietary information is not limited to specific

1 documents or files, and can include Celgard's trade secrets, proprietary, and confidential
2 information that is personally known to individuals, including Dr. Steven Zhang, whether or not
3 embodied in a specific storage medium or document.

4 110. Based on its many decades of extensive research and development, product testing,
5 trials, and other investments and experience, Celgard has acquired trade secrets, proprietary, and
6 confidential information regarding how to effectively manufacture separators to improve the safety
7 of batteries, quickly and efficiently meet customer demand, and perform quality testing to ensure
8 its products meet customer specifications and industry standards. Celgard has also acquired know-
9 how on its combination of materials and optimization of properties.

10 111. Celgard takes reasonable steps to keep its trade secrets, proprietary, and confidential
11 information confidential and to prevent their public disclosure. These steps include, but are not
12 limited to: (1) requiring employees to sign non-disclosure agreements and adhere to a code of
13 conduct; (2) making non-disclosure of trade secrets, proprietary, and confidential information and
14 applicable security measures explicit in its employee hiring, training, and/or handbook; (3)
15 restricting employee's physical and electronic access to trade secrets, proprietary, and confidential
16 information and to reports containing such information; (4) requiring a valid user login to access
17 electronic information; (5) requiring employee badges to access Celgard offices and plants; (6)
18 extensive training, (7) careful labeling of confidential and proprietary information on documents
19 within Celgard, (8) exiting employee procedures reminding exiting employees of obligations to
20 keep Celgard's information confidential and to not disclose such information, to return Celgard's
21 equipment, materials and lab notebooks, and often obtaining confirmation from exiting employees
22 of their understanding.

23 112. As a result of its considerable investment in the development, manufacture,
24 marketing, and sale of its separators and its efforts made to protect its trade secrets, proprietary,
25 and confidential information from public disclosure or use, Celgard has gained a distinct,
26 commercial and economic advantage in the separator market that has resulted in substantial sales
27 and market share for its separators.
28

2. Dr. Steven Zhang and the Misappropriation of Celgard Trade Secrets

113. Senior has embarked on a scheme to harm Celgard by violating its intellectual property rights. As part of that scheme, Senior hired former Celgard employee, Dr. Steven Zhang. Dr. Steven Zhang was employed by Celgard from 2005 until 2016 and, during that time, held a number of positions, was part of the R&D department and function, and was an expert at Celgard in at least resins, polymers, membranes, base films, and process and production technology.

114. Dr. Steven Zhang did not have prior experience in designing and working with battery separators before joining Celgard.

115. Dr. Steven Zhang climbed the ranks at Celgard, including being a Polypore Fellow, which is the highest technical rank in Polypore, as well as being a Celgard Technical Associate, which is the highest technical rank in Celgard. He possessed extensive knowledge about all facets of at least Celgard's dry process, including at least the following: (1) which types of resins worked to obtain various product properties as well as the tolerances and compositions for resins, (2) how to adjust the process or compositions of products to obtain the specific properties found in Celgard's separators, (3) what types of equipment to use to obtain the specific properties found in Celgard's separators, including the tolerances, adjustments, and custom engineered aspects of the process, and (4) how to balance different features of components to generate specific properties of Celgard's separators. He likewise had such information regarding Celgard's coated separators. Further, by virtue of his high position within Celgard, Dr. Steven Zhang had access to substantial confidential information and trade secret information pertaining to Celgard's manufacturing of separators.

116. It has taken Celgard more than twenty years to develop the information that Dr. Steven Zhang possesses and/or had access to.

117. During his time at Celgard, Dr. Steven Zhang was an inventor or co-inventor on a number of Celgard patents, and was extensively and intimately involved with Celgard's separators' design, development, and production. As a result, Dr. Steven Zhang has unique, detailed, and extensive knowledge of and access to Celgard's trade secrets, proprietary, and confidential information relating to the design and manufacture of Celgard's separators, including, but not limited to, information relating to the materials, methods, production capacities, costs, and

1 processes employed by Celgard in connection with the development, manufacture, and assembly
2 of its separators (trade secrets, proprietary, and confidential information that are kept strictly
3 confidential and not reflected, for example, in Celgard's patents related to separators).

4 118. As a result of Dr. Steven Zhang's knowledge of and access to Celgard's trade
5 secrets, proprietary, and confidential information, Celgard prohibited him by contract and company
6 policy from disclosing or using such information outside of his employment with Celgard.

7 119. As an example, Dr. Steven Zhang signed a valid and binding written non-disclosure
8 and non-solicitation agreement with the parent company of Celgard (the Nondisclosure Agreement)
9 which provides in relevant part:

10 **Nondisclosure of Proprietary Information.** Employee recognizes that all
11 Proprietary Information is the sole property of the Company. At all times, both
12 during the employment by Employer and after the termination of such
13 employment, Employee agrees to keep in the strictest confidence and trust all
14 Proprietary Information. Employee will not disclose, transmit or use in any way
15 any Proprietary Information (except as may be necessary to perform employee's
16 duties and obligations as an Employee of the Employer) without the prior express
17 written consent of the management of Employer.

18 The Nondisclosure Agreement also provides:

19 **Nonsolicitation of Supplies.** During the term of Employee's employment with
20 Employer and for thirty-six (36) months after the date Employee ceases to be
21 employed by Employer (the "Restricted Period"), Employee shall not, directly or
22 indirectly request, induce or attempt to influence any supplier of goods or services
23 to the Company to curtail or cancel any business it transacts with the Company.

24 120. Dr. Steven Zhang was aware of his obligations to keep Celgard's trade secrets,
25 proprietary, and confidential information as confidential, and not to disclose or use such trade
26 secrets, proprietary, or confidential information for any purpose. Dr. Steven Zhang was also aware
27 that his obligations continued even after he left Celgard and that any and all Celgard materials in
28 his possession had to be returned to Celgard before he left. Dr. Steven Zhang did not have and does
not have permission to use or disclose any information belonging to Celgard after his departure
from Celgard.

1 121. [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 122. In or around October, 2016 [REDACTED], Dr. Steven Zhang resigned

5 from Celgard. When Dr. Steven Zhang resigned from Celgard in October 2016, he told Celgard

6 that he was going to work for General Electric in California, which was false.

7 123. [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 124. [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 Dr. Steven Zhang acquired Celgard's trade secrets, proprietary, and confidential information in

15 North Carolina and used and disclosed them in North Carolina and California, among possibly

16 other locations.

17 125. In or around January, 2017, Dr. Steven Zhang began working for Senior-China as

18 its Chief Technology Officer. When Dr. Steven Zhang left Celgard, he changed his name, at the

19 request of Senior-China, to Dr. Bin Wang. Senior asked Dr. Steven Zhang to introduce himself as

20 Dr. Bin Wang to prevent Celgard from learning that Dr. Steven Zhang was working for Senior-

21 China.

22 126. [REDACTED]

127. Additionally, [REDACTED]
[REDACTED]
[REDACTED], further concealing his and Senior's unlawful conduct.

128. Senior's initial efforts to conceal its hiring of Dr. Steven Zhang were successful. Celgard had asked Senior in the summer of 2018 whether Dr. Steven Zhang worked at Senior, and Senior said no.

129. It was not until around February 2019 that Celgard obtained definitive proof of Dr. Steven Zhang's defection to Senior, when it obtained a photograph of him at Panasonic (a battery manufacturer and customer of Celgard) on behalf of Senior (Dr. Steven Zhang is second on the left):



130. In early 2019, Dr. Steven Zhang called Celgard, stating he was not "technically" working for Senior and that he was not working on separator-related technology for Senior. He stated he was instead working on technology such as reverse-osmosis. This statement is false because [REDACTED]
[REDACTED].

131. On February 25, 2019, after Celgard learned that Dr. Steven Zhang was working at Senior, Celgard sent a letter to Senior-China explaining that Dr. Steven Zhang has received

1 Celgard's trade secrets, proprietary, and confidential information while at Celgard and that he was
 2 not permitted to use "Polypore's or Celgard's confidential information, inventions, and trade
 3 secrets." Thus, at least as of February 25, 2019, Celgard provided notice to Senior that Dr. Steven
 4 Zhang was in possession of Celgard's trade secrets, proprietary, and confidential information, that
 5 Dr. Steven Zhang was not permitted to disclose Celgard's trade secrets, proprietary, and
 6 confidential information to Senior, and that any use of such information would be unauthorized.

7 132. Senior ignored Celgard's letter, and Celgard never received any response. When
 8 Celgard asked Senior about its lack of response, Senior claimed it never received the letter. Celgard
 9 then contacted Senior more directly by sending the formal letter through short message to Mr.
 10 Xiufeng (Jian) Chen's mobile phone. Senior's only response to the letter were the following glib
 11 remarks by text message: (1) "Just guess! Friend, it is normal!" and (2) "I also know a lot of
 12 Japanese and Korean separator experts! Good friends, too! Very Normal! What's so strange about
 13 that?"⁵

14 133. Senior hired Dr. Steven Zhang for the specific purpose of using his knowledge of
 15 Celgard's trade secrets, proprietary, and confidential information to help Senior develop its
 16 competing separators and to capitalize on his prior relationship and confidential knowledge about
 17 Celgard's customers.

18 134. Senior actively concealed its scheme to prevent Celgard from learning of its
 19 unlawful actions. Senior's unlawful actions and concealment allowed it to steal Celgard's trade
 20 secrets, proprietary, and confidential information and use it without Celgard's knowledge until after
 21 Senior had separators on the market that incorporated the stolen trade secrets, proprietary, and
 22 confidential information and after Senior had unlawfully lured away Celgard customers by pricing
 23 below even manufacturing costs. Senior would not have been able to offer such low pricing without
 24 the benefit of Celgard's trade secrets, proprietary, and confidential information.

25 135. Dr. Steven Zhang and Senior actively concealed their scheme to prevent Celgard
 26 from learning of their unlawful actions. Dr. Steven Zhang's unlawful actions and concealment

27 _____
 28 ⁵ **Exhibit CCC.** Copies of the text messages sent by Mr. Chen of Senior (translated into English
 for the allegations in the Complaint).

1 allowed him to steal and incorporate Celgard's trade secrets, proprietary, and confidential
2 information without Celgard's knowledge until after Senior had separators on the market that
3 incorporated the stolen trade secrets, proprietary, and confidential information.

4 136. Dr. Steven Zhang made false statements about why he was leaving Celgard, false
5 statements about where he was going when he left, false statements about working for Senior, and
6 even adopted a different name after departing Celgard so Celgard could not learn the truth. Celgard
7 relied on Dr. Steven Zhang's false statements to its detriment.

8 137. By stealing Celgard's trade secrets, proprietary, and confidential information
9 through Dr. Steven Zhang, Senior was and is intentionally attempting to drive Celgard out of the
10 market.

11 138. After stealing and implementing Celgard's trade secrets, proprietary, and
12 confidential information, Senior's global market share increased. For example, including Farasis
13 and others, Senior took away from Celgard about [REDACTED]

14 [REDACTED]
15 [REDACTED]
16 [REDACTED] Dr. Steven Zhang was directly involved in helping Senior design, develop, and devise
17 manufacturing processes, compositions, and separators to create replicas of Celgard's separators,
18 using Celgard's misappropriated trade secrets, proprietary, and confidential information.

19 139. Senior's separators greatly improved in quality and design after hiring Dr. Steven
20 Zhang. Notably, several properties of Senior's separators became similar to or the same as
21 Celgard's separators. Such properties include but are not limited to lower shrinkage, higher
22 strength, Gurley, improved puncture strength, and better elongation. Specifically, for example, at
23 least two particular properties of Senior-China's separators—thermal shrinkage and strength—
24 were optimized after hiring Dr. Steven Zhang, using Celgard's trade secrets, proprietary, and
25 confidential information obtained from Dr. Steven Zhang, to be comparable to that of Celgard's.
26 Indeed, many of the properties of Senior-China's products that changed following Dr. Steven
27 Zhang's departure from Celgard now exactly or nearly match properties of Celgard's products.
28 Senior-China could not have made such improvements in the short period of time between Dr.

Steven Zhang's joining Senior-China and its updated product properties/offerings without the use of Dr. Steven Zhang's knowledge of Celgard's trade secrets, proprietary, and confidential information. Specific examples of Senior improving products using Celgard trade secrets, proprietary, and confidential information obtained from Dr. Steven Zhang are provided below based on Senior's datasheets for their products prior to Dr. Steven Zhang's hiring and shortly thereafter:

Separator Model No. SD216201

Item	Pre-Dr. Steven Zhang datasheet	2019 datasheet	Notes
Puncture strength (g)	≥ 300	330	Up to 10% improvement
Tensile strength (kgf/cm ²) MD	≥ 1400	1800	Up to 29% improvement
Tensile strength (kgf/cm ²) TD	≥ 130	175	Up to 35% improvement
Shrinkage (% , 90 C, 2 hr) MD	≤ 1.5	0.8	Up to 47% improvement
Shrinkage (% , 90 C, 2 hr) TD	≤ 0.5	0	Up to 100% improvement
Shrinkage (% , 105C, 2 hr) MD	≤ 3.5	1.5	Up to 57% improvement
Shrinkage (% , 105C, 2 hr) TD	≤ 0.5	0	Up to 100% improvement

Separator Model No. SD216101

Item	Pre-Dr. Steven Zhang datasheet	2019 datasheet	Notes
Puncture strength (g)	> 220	295	Up to 34% improvement
Tensile strength (kgf/cm ²) MD	> 1100	1450	Up to 32% improvement
Shrinkage (% , 90 C, 2 hr) MD	$< 1.5 \%$	1.0 %	Up to 33% improvement
Shrinkage (% , 90 C, 2 hr) TD	$< 0.5 \%$	0 %	Up to 100% improvement
Shrinkage (% , 105C, 1 hr) MD	$< 3.5 \%$	1.8 %	Up to 50% improvement
Shrinkage (% , 105C, 1 hr) TD	$< 0.5 \%$	0 %	Up to 100% improvement

1 Separator Model No. [REDACTED]

2 Senior-China's [REDACTED] utilizes an identical or substantially similar matrix material to
3 that used in Celgard's Q20S1HX ceramic coated separator. Senior-China's selection of the exact,
4 or near-exact same material was made with the aid of Dr. Steven Zhang, who possessed in depth
5 knowledge of Celgard's proprietary, confidential information and trade secrets related to product
6 materials/ingredients. Senior-China's matrix material in the [REDACTED] ceramic coated separator
7 shows a substantially similar FT-IR spectra to Celgard's matrix material. Senior-China would not
8 have known or been able to know the specific type of the matrix material that Celgard uses unless
9 it was communicated by Dr. Steven Zhang to Senior-China. Senior-China usage of a substantially
10 similar matrix material in its [REDACTED] to Celgard's Q20S1HX ceramic coated separator
11 constitutes an unauthorized use of Celgard's confidential, proprietary information/trade secrets, and
12 the conveyance of the relevant technical information from Dr. Steven Zhang to Senior (including
13 Senior-China) constitutes a disclosure of confidential/trade secret/proprietary information by an
14 unauthorized person.

15 140. These product model numbers are examples of a wider use and misappropriation of
16 Celgard's trade secrets, proprietary, and confidential information across Senior's product offerings.
17 These properties in Senior's products were optimized using Celgard's trade secrets, proprietary,
18 and confidential information used and disclosed by Dr. Steven Zhang. Senior misappropriated
19 Celgard's trade secrets, proprietary, and confidential information to manufacture infringing copies
20 of Celgard's separators through Dr. Steven Zhang.

21 141. It took Celgard more than 20 years and extensive investments to discover and create
22 the correct compositions and processes, along with the tolerances and components for the
23 compositions and for every step of each process, to generate the specific properties of Celgard's
24 separators that provide Celgard with a competitive advantage in the market. In 2016, Senior did not
25 have separators with Celgard's properties. Shortly after Dr. Steven Zhang began working with
26 Senior, it brought at least 20 new separators to market, and improved the performance of many of
27 its existing separators to have similar or identical properties to Celgard's superior separators. This
28 rapid improvement of properties and release of numerous new products is not realistic in the battery

separator industry absent access to information from another that already knows the secrets to achieving those improvements. In this case, Senior had unauthorized access to Celgard's trade secrets, proprietary, and confidential information through its hiring of Dr. Steven Zhang.

142. For example, Senior used Celgard's trade secrets, proprietary, and confidential information to create new or improved Senior SD Product Line products developed, offered for sale, or sampled after Dr. Steven Zhang began working for and/or consulting for any defendant, including SD425201, SD425301, SD425401, SD432101, SD432201, SD432301, SD440201, SD440301, SD212202, SD214202, SD216001, SD216202, SD220101, SD220102, SD220001, SD220201, SD220202, SD460201 and SD425202; new or improved Senior SQ Product Line products developed, offered for sale, or sampled after Dr. Steven Zhang began working for and/or consulting for any defendant, including SD212202 (SQ212D), SQ212F, and SQ216C; new or improved Senior ST Product Line products developed, offered for sale, or sampled after Dr. Steven Zhang began working for and/or consulting for any defendant, including ST212D, ST212F, ST214C, ST216D, ST216E, ST218D, ST218F, ST420C, and ST420E; new or improved Senior SZ Product Line products developed, offered for sale, or sampled after Dr. Steven Zhang began working for and/or consulting for any defendant; new or improved Senior SH Product Line products developed, offered for sale, or sampled after Dr. Steven Zhang began working for and/or consulting for any defendant, including SH216D14, SH216D22, SH416W14, SH416W22, SH420D14, SH420D22, SH620D14, and SH620D22.

143. Senior, through Dr. Steven Zhang, used Celgard's trade secrets, proprietary, and confidential information to bring new separators to market and make separators with Celgard's properties – obtainable in such a short time only by the use of Celgard's trade secrets, proprietary, and confidential information.

144. Senior contacted Dr. Steven Zhang while he was still working at Celgard. Senior and Dr. Steven Zhang agreed that Dr. Steven Zhang would leave Celgard to work for Senior and would help create new separators for Senior, separators that had properties similar or the same as Celgard's separators. Senior and Dr. Steven Zhang planned to use Celgard's trade secrets, proprietary, and confidential information to develop new separators, improve Senior's separators

1 and make separators of comparable quality to Celgard's separators. Celgard believes Senior and
2 Dr. Steven Zhang's plan was made before Senior hired Dr. Steven Zhang.

3 145. Senior and Dr. Steven Zhang knew, or should have known, that Dr. Steven Zhang
4 had acquired Celgard's trade secrets, proprietary, and confidential information while at Celgard.
5 Dr. Steven Zhang's resume would indicate his scientific and technical ascension at Celgard over
6 more than a decade and a simple public patent search indicates he is an inventor on several Celgard
7 patents and so was clearly involved in key Celgard development. Dr. Steven Zhang and Senior
8 knew, or should have known, that disclosure of Celgard's trade secrets, proprietary, and/or
9 confidential information breached Dr. Steven Zhang's contractual obligations and duties of
10 confidentiality to Celgard. It is typical for companies employing individuals performing research
11 and development work to have agreements regarding confidentiality in place. Senior and Dr. Steven
12 Zhang used Celgard's trade secrets, proprietary, and/or confidential information to develop and
13 manufacture replicas of Celgard's separators and have used and intend to continue to use this
14 information to market and sell competing separators.

15 146. Senior's and Dr. Steven Zhang's misappropriation of Celgard's trade secrets,
16 proprietary, and confidential information, improper acquisition and use of Celgard's trade secrets,
17 proprietary, and confidential information, and other wrongdoing has caused and will continue to
18 cause Celgard to lose sales, customers, business, reputation, goodwill, and market share for its
19 separators, and thereby has caused and will continue to cause Celgard significant pecuniary and
20 irreparable harm for which it seeks injunctive relief, monetary damages and other relief in an
21 amount to be determined at trial.

22 147. Celgard has been and will continue to be irreparably harmed by Senior's and Dr.
23 Steven Zhang's unlawful activities if not enjoined.

24 3. Other Infringing Activities

25 148. Dr. Steven Zhang has been working for Senior in some capacity, through Senior-
26 China, Senior-California, Sun Town, and/or Global Venture, since before his departure from
27 Celgard in 2016. Dr. Steven Zhang and Senior (through one or more of the named entities) planned
28

1 for Dr. Steven Zhang to leave Celgard and work for Senior with the intent that Dr. Steven Zhang
2 create infringing separators for Senior and with the intent to take away business from Celgard.

3 149. The letter sent to Senior-China on February 25, 2019, after Celgard learned that Dr.
4 Steven Zhang was working at Senior, explained, among other things, that Senior-China infringed
5 at least the '520 patent (or its predecessor, the '586 patent). Senior-China dismissed the letter and
6 never formally responded.

7 150. Senior hired Dr. Steven Zhang for the specific purpose of using his knowledge of
8 Celgard's patented technology to help Senior develop its infringing separators and to capitalize on
9 his prior relationship and confidential knowledge about Celgard's customers. By unlawfully
10 creating infringing separators, Senior was intentionally attempting to drive Celgard out of the
11 market.

12 151. Senior has infringed Celgard's patents, both through its own direct sales, offers for
13 sale, and importation of infringing products and through the downstream sales, offers for sale, and
14 importation of Senior's direct customers and distributors. Aside from the infringement involving
15 Farasis' products, the following list is exemplary of at least Senior-China's infringing activities:

- 16 a. Senior-China has offered for sale, sampled or sold infringing products to entities in
17 the U.S. that it identifies as existing customers. **Exhibit LL** at 5; **Exhibit MM** at
18 1-2. 11; **Exhibit QQ** at 1.
- 19 b. Senior-China has sold and/or shipped infringing separators to California entities and
20 other U.S. entities. **Exhibit NN** at 1, 3, 5; **Exhibit OO** at 1; **Exhibit PP** at 1; **Exhibit**
21 **LL** at 1, 3; **Exhibit QQ** at 1.
- 22 c. Senior-China had a working relationship to provide infringing separators with
23 California and U.S. entities. **Exhibit RR** at 1; **Exhibit SS** at 8, 15; **Exhibit LL** at 3-
24 5; **Exhibit TT** at 2.
- 25 d. Senior-China affirmatively took steps to ensure its products ended up in California
26 and other U.S. locations. **Exhibit UU** at 6 *with* **Exhibit VV** at 1; **Exhibit WW** at 5;
27 **Exhibit SS** at 8; **Exhibit PP** at 1-5; **Exhibit QQ** at 1.

e. Senior-China regularly received information stating where its separators were destined for and information on which separator models were sent or had been tested. **Exhibit VV** at 1; **Exhibit WW** at 5; **Exhibit XX** at 3-4; **Exhibit YY** at 2; **Exhibit ZZ** at 4.

152. More specifically, Senior-China has actively claimed that [REDACTED] (California companies) are its customers, (2) Senior-China knew and actively supported its distributor, Targray, in supplying accused infringing separators to at least [REDACTED] [REDACTED] in California, (3) Senior-China received product requirement information for [REDACTED] and the identity of Senior-China separators [REDACTED] sampled through Targray, (4) Senior-China sold accused infringing separators in California to meet [REDACTED] [REDACTED] specific needs, (6) Senior-China hosted [REDACTED] at its manufacturing facilities in China with the intent of establishing a sales relationship, either directly or through Targray with [REDACTED] in California, and (7) Senior-China offered to provide direct customer support to [REDACTED] in California regarding its accused infringing separators.

153. On March 18-19, 2019 Senior-China acknowledged it sent accused separator products [REDACTED] to [REDACTED], who is in California. **Exhibit AAA** at 2-3; **Exhibit WW** at 5.

154. Sometime between March 18, 2019 and June 21, 2019, [REDACTED] [REDACTED]. **Exhibit VV** at 1; **Exhibit SS** at 15.

155. After the visit, Senior-China continued to sample and sell separators to [REDACTED], including at least accused products [REDACTED]. **Exhibit NN** at 3, 5; **Exhibit OO**; **Exhibit PP** at 1; **Exhibit TT** at 8, 11, 15.

156. [REDACTED] [REDACTED] infringe at least Claim 12 of the '520 Patent, at least claims 17-18 of the '867 Patent, and/or have been developed and made with Celgard's trade secrets, proprietary, and confidential information.

157. Around June or July 2019, Senior-China was likewise involved in the sales and/or sampling, and the shipment of accused separators to California company [REDACTED].

158. More specifically, around June or July 2019, Senior-China sent accused separator [REDACTED], either directly or through Targray, knowing it was destined for [REDACTED] in California. **Exhibit YY** at 1-2.

159. [REDACTED] infringes at least claims 17-18 of the '867 Patent and/or has been developed and made with Celgard's trade secrets, proprietary, and confidential information.

160. Senior-China knew of sales of accused separators [REDACTED] to California company [REDACTED], and additionally, Senior-China provided information about its ceramic coated separators (accused products) that [REDACTED] was seeking to purchase. **Exhibit ZZ** at 2, 4.

161. [REDACTED] infringe at least Claim 12 of the '520 Patent, at least claims 17-18 of the '867 Patent, and have been developed and made with Celgard's trade secrets, proprietary, and confidential information. [REDACTED], infringe at least claims 17-18 of the '867 Patent, and/or have been developed and made with Celgard's trade secrets, proprietary, and confidential information.

162. Senior-China has offered to sell (**Exhibit LL** at 5), sampled (*Id.* at 1, 3; **Exhibit QQ** at 1), and sold accused separators to California company [REDACTED], including accused ceramic coated separators (Senior's "SH" line of separator products), which infringe at least Claim 12 of the '520 Patent, at least claims 17-18 of the '867 Patent, and/or have been developed and made with Celgard's trade secrets, proprietary, and confidential information.

163. Senior-China has also claimed, in a 2016 distribution agreement with Targray, that California companies [REDACTED] **Exhibit MM** at 1, 2, 11.

164. Senior-China has also offered for sale, sampled, and sold accused products to other companies within the United States and outside of California, which infringe at least Claim 12 of the '520 Patent, at least claims 17-18 of the '867 Patent, and/or have been developed and made with Celgard's trade secrets, proprietary, and confidential information.

165. After creating infringing separators, Senior's global market share increased through actions like those described above and like those described elsewhere with Farasis.

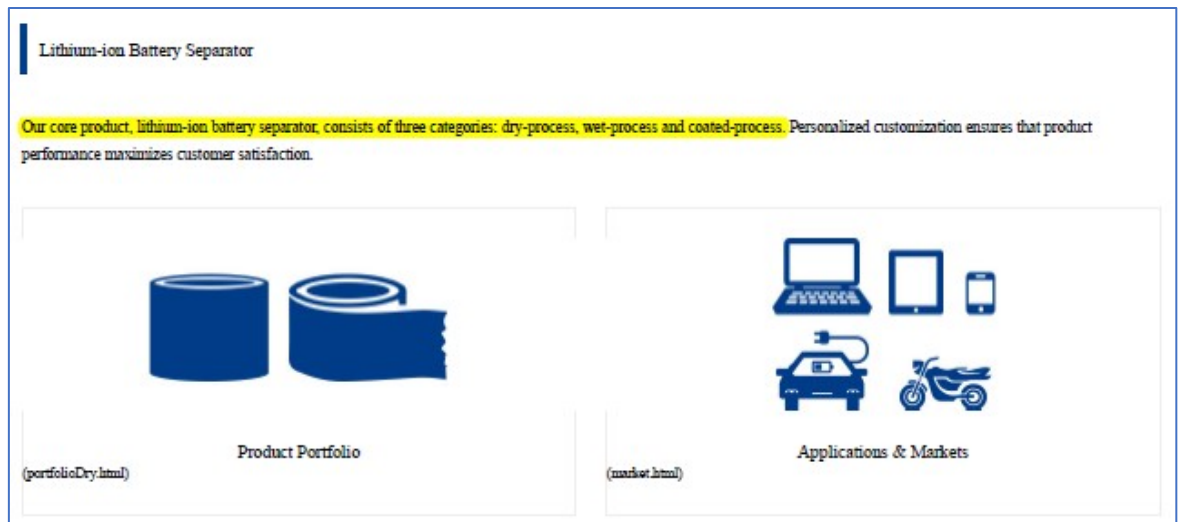
166. Senior's infringement of the Asserted Patents and other wrongdoing has caused and will continue to cause Celgard to lose sales, customers, reputation, and market share for its products and thereby has caused and will continue to cause Celgard significant irreparable and pecuniary harm for which it seeks injunctive relief and monetary damages and relief in an amount to be determined at trial.

167. Celgard has been and will continue to be irreparably harmed by Patent Defendants' infringing and unlawful activities.

4. Senior's Infringing Separator Products

168. All of the Defendants are aware of Celgard and its products, including Celgard's separator products.

169. Senior-China's primary business involves manufacturing lithium-ion battery separators, and particularly, the accused coated separators and accused base films (made by dry or wet process) in this action:⁶



⁶ See <http://www.senior798.com/home/product/index.html> (last accessed February 26, 2021, attached hereto as **Exhibit CC**).

1 Senior-China identifies its products on its website by the first two letters. For example, it identifies
 2 the “Product Type” for its coated separators as: “SH/SN/SF Series.”⁷ By further example, it
 3 identifies the “Product Type” for its wet process separators as: “SW5/SW3/SW2/SW1 Series” and
 4 the “Product Type” for its dry process separators as “SD/SQ/ST/SZ Series.”⁸ The “W” designation
 5 refers to separators made by wet-process. The website does not list any specific product numbers
 6 for its products.

7 170. Senior-China manufactures ceramic coated lithium-ion battery separators,
 8 including, but not limited to, those sold under at least the series designations SH, MCS, and MFS,
 9 those sold under at least the grades SH216, SH416, SH220, SH225, and SH230, and those sold
 10 under at least the model numbers SH320D14, SH420D14, SH420D22, SH416W14, SH416W22,
 11 SH216D14, SH216D22, SW312F (SH716W14, SH716W22), SW316E (SH220W14, SH220W22),
 12 SW320H (SH624W14, SH624W22), SH816D14, SH816D22, SH216Z14, SH216Z22, SH220D14,
 13 SH220D22, SH620D14, SH620D22, SH620T14, SH320Z14, SH224D14, SH224D22, SH624D14,
 14 SH624Z14, SH229D14, SH229D22, SH112H22, SH114H23, YV218D51A, YV718W51A,
 15 YT623D44A, and YT413W22. Each of these separators and/or other same or similar separators
 16 (e.g., ceramic coated separators) infringes at least claim 12 of the ’520 patent.

17 171. Two types of separators infringe the ’867 patent—coated and uncoated
 18 polypropylene lithium-ion battery separators. The ceramic coated polypropylene lithium-ion
 19 battery separators manufactured by Senior-China include at least the following: SH320D14,
 20 SH420D14, SH216D14, SH816D14, SH216Z14, SH220D14, SH620D14, SH620T14, SH320Z14,
 21 SH224D14, SH624D14, SH624Z14, SH229D14, YV218D51A, and YT623D44A. The uncoated
 22 polypropylene lithium-ion battery separators manufactured by Senior-China include, but are not
 23 limited to, those sold under at least the series designations SD, SQ, ST, and SZ, those sold at various
 24 thicknesses and porosity values, and those sold under at least the model numbers SD216C,
 25 SD216101, SD216001, SD216201, SD216E, SD216301, SD220C, SD220001, SD220101,
 26

27 ⁷ <http://www.senior798.com/home/product/portfolioCoa.html> (last accessed February 26, 2021)
 28 attached hereto as **Exhibit DD**).

⁸ *Id.*

SD422201, SD220201, SD425201, SD425301, SD425401, SD432101, SD432201, SD432301, SD440201, SD440301, SQ212D, SD212202, SQ212F, SD214202, SQ214E, SD216102, SQ216C, SD216202, SD220102, SD220202, SD220202 (double layers), SD425202, SD460201, ST212D, ST212F, ST214C, ST216D, ST216E, ST218D, ST218F, ST420C, ST420E, and SZ212202. Each of these separators and/or other same or similar separators infringes at least claim 17 and/or claim 18 of the '867 patent.

172. These products are made, used, offered for sale, sold, and/or imported into the U.S. by each Patent Defendant (and/or through its subsidiaries, divisions, affiliates, or groups). Specifically, these products are offered for sale, have been offered for sale, are sold and/or have been sold by Senior-China, Sun Town and Senior-California.

173. The Trade Secret Defendants are involved in making, using, offering for sale, selling, and/or importing into the U.S. separators designed and made with misappropriated trade secrets, proprietary, and other confidential information from Celgard.

174. Targray, a former U.S. Distributor of Senior's separators, for example, stated of Senior's separators that "[t]he latest addition to Targray's line of battery separators, our ceramic separators delivers an exceptional combination of safety, temperature performance and life cycle for lithium-ion battery manufacturers and R&D facilities. Given their rigorous safety and performance features, our ceramic separators are ideally suited for advanced li-ion battery applications, namely electric vehicles and energy storage systems."⁹

175. Senior's SH416W14 and SH416W22 separators are ceramic-coated wet process polyethylene separators, which "are also available with aluminum oxide ceramic coating to further enhance safety characteristics."¹⁰ Senior's entire "SH" series is available with aluminum oxide ceramic coating.

176. Senior's SH216D14 and SH216D22 separators are "ceramic-coated dry process ceramic separators," which "are also available with aluminum oxide ceramic coating to further

⁹ <https://www.targray.com/li-ion-battery/separators/ceramic-separators> (last accessed April 5, 2019), attached as **Exhibit L**.

¹⁰ "High-performance Separators," Targray—Battery Division, attached as **Exhibit M**, at 6.

enhance safety characteristics.”¹¹ The “D” designation refers to standard dry-process separator. Senior’s entire “SH” series is available with aluminum oxide coating.

177. Senior’s SH416W22 and SH216D22 are the double-side coated versions of SH416W14 and SH216D14, respectively.

178. Senior’s SH620T14 separator is a polypropylene separator made by dry-process with one side of the separator having an aluminum oxide ceramic coating.

179. Senior’s ceramic coated lithium-ion battery separators, such as those recited in Paragraph 170, including the “SH” series, and including at least SH416W14, SH416W22, SH216D14, SH320D14, SH216D22, and SH620T14 separators¹² and/or other same or similar separators infringe at least Claim 12 of the ’520 patent. Claim 12 of the ’520 patent recites:

A separator for an energy storage system comprises:

at least one ceramic composite layer or coating, said layer including a mixture of 20-95% by weight of inorganic particles selected from the group consisting of SiO₂, Al₂O₃, CaCO₃, TiO₂, SiS₂, SiPO₄, and mixtures thereof, and 5-80% by weight of a matrix material selected from the group consisting of polyethylene oxide, polyvinylidene fluoride, polytetrafluoroethylene, copolymers of the foregoing, and mixtures thereof, said layer being adapted to at least block dendrite growth and to prevent electronic shorting; and

at least one polyolefinic microporous layer having a porosity in the range of 20-80%, an average pore size in the range of 0.02 to 2 microns, and a Gurley Number in the range of 15 to 150 sec, said layer being adapted to block ionic flow between an anode and a cathode.

¹¹ *Id.*

¹² Attached herewith as **Exhibit JJ** are infringement claim charts showing infringement of the ’520 patent by Senior’s Model Nos. SH416W14, SH216D22, and SH620T14 separators, as used in Farasis’ products. Celgard and Farasis have settled and so no claims are asserted against Farasis in this amended complaint. This exhibit was previously filed and so Farasis is called “Farasis Defendants” within the exhibit. This is an artifact of the previous filing and is not intended to indicate that Farasis is a defendant to this amended complaint. The products listed in Paragraph 170 for which claim charts are not supplied herein, all share the same, or substantially the same, infringing qualities as the charted products: providing a safer separator by blocking dendrite growth and hence preventing electronic shorting. For example, they share the same or similar polyethylene or polypropylene base film. Further, they also share the same or similar ceramic composite layer or coating.

180. Senior's ceramic coated separators comprise a ceramic composite layer or coating composed of inorganic particles of the nature and weight percentage (or the equivalent thereto) set forth in Claim 12 of the '520 patent. These Senior ceramic coated separators have an "aluminum oxide ceramic coating to further enhance safety characteristics."¹³

181. Senior's ceramic coated separators comprise a ceramic composite layer or coating composed of a matrix material of the nature and weight percentage (or the equivalent thereto) set forth in Claim 12 of the '520 patent.

182. Senior's ceramic coated separators comprise a ceramic composite layer that is "adapted to at least block dendrite growth and to prevent electronic shorting," as set forth in Claim 12 of the '520 patent. On its website, Targray (Senior's former distributor) acknowledged that these Senior "battery separators must be able to withstand penetration and branching moss-like crystalline minerals in order to prevent the contamination of electrodes. If the separator material is compromised, the performance of the high-power cell declines."¹⁴

183. Senior's ceramic coated separators comprise a polyolefinic microporous layer having porosity, average pore size, and Gurley Number measurements within the ranges (or the equivalents thereto) set forth in Claim 12 of the '520 patent.

184. Senior's ceramic coated separators comprise a polyolefinic microporous layer that is "adapted to block ionic flow between an anode and a cathode," as set forth in Claim 12 of the '520 patent.

185. Further, Senior's coated and uncoated polypropylene lithium-ion battery separators, such as those recited in Paragraph 171, including at least Senior's SD216C, SH420D14, SH420D22, SH320D14, SD216101, SD216001, SD216201, SH216D14, SH216D22, and SH620T14 separators¹⁵ and/or other same or similar separators infringe at least Claims 17 and 18 of the '867 patent. Claim 17 of the '867 patent, for example, recites:

¹³ *Id.*

¹⁴ <https://www.targray.com/li-ion-battery/separators> (last accessed Apr. 9, 2019), attached hereto as **Exhibit N**.

¹⁵ Attached herewith as **Exhibit KK** are infringement claim charts showing infringement of the '867 patent for Senior's Model Nos. SH216D14 and SH620T14 separators, as used in Farasis'

1 A battery separator with improved pin removal properties
2 comprising:

3 a microporous membrane having a polypropylene surface portion
4 including at least 50 ppm of a metallic stearate.

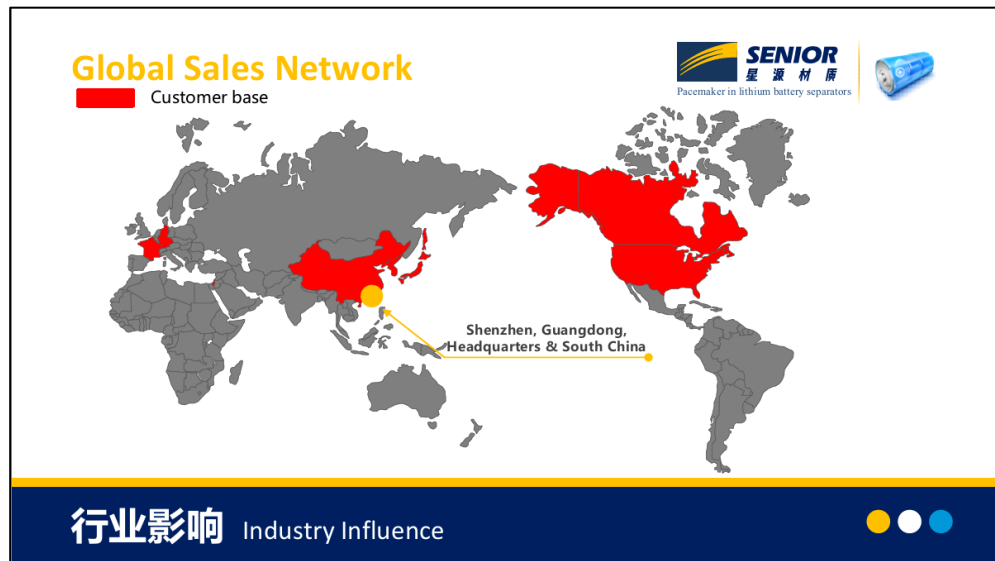
5 186. Senior's coated and uncoated polypropylene lithium-ion battery separators comprise
6 a microporous membrane having a polypropylene surface portion including at least 50 ppm of a
7 metallic stearate.

8 187. One or more of the separators identified above by model number and/or other same
9 or similar separator has been made, used, offered for sale, sold and/or imported by Farasis in its
10 lithium-ion batteries, and remade, reused, reoffered for sale, resold and/or reimported in the United
11 States as part of its lithium-ion batteries. For example, Farasis has used and uses at least Senior's
12 [REDACTED] separator and/or other same or similar separator in its lithium-ion batteries, such as, for
13 example [REDACTED]
14 [REDACTED] in Zero Motorcycles' FX model.

15 188. Moreover, Senior's separators have unlawfully included Celgard's trade secrets,
16 proprietary, and confidential information pursuant to Trade Secret Defendants' scheme.

17 189. Senior's products are sold globally, including in the United States. A brochure from
18 Senior depicts its customer base (in red):
19
20
21
22

23 products. Celgard and Farasis have settled and so no claims are asserted against Farasis in this
24 amended complaint. This exhibit was previously filed and so Farasis is called "Farasis Defendants"
25 within the exhibit. This is an artifact of the previous filing and is not intended to indicate that Farasis
26 is a defendant to this amended complaint. The products listed in Paragraph 171 for which claim
27 charts are not supplied herein, all share the same, or substantially the same, infringing qualities as
28 the charted products. For example, they are various battery separators with improved pin removal
properties. These products also at least share a similar polypropylene base film as Senior's
SD216D14 separator, and they would also include separators made of multiple polyolefin layers,
where at least one outer polypropylene layer has no coating, including SH320D14.



190. The products Senior sells (or samples or offers for sale) that enter the United States are products that result from the unlawful theft of Celgard's trade secrets, proprietary, and confidential information, and that infringe at least Claim 12 of the '520 Patent and Claims 17-18 of the '867 Patent.

5. Senior-California's Infringing Activities

191. Patent Defendants', including Senior-California's, infringing activities are set forth in the preceding paragraphs, which are incorporated herein and are further set forth herein.¹⁶

192. Senior-California is Senior-China's U.S subsidiary located in the San Francisco Bay Area.

¹⁶ Although Senior-California claims it allegedly dissolved in 2019 and claims it allegedly no longer currently engages in infringing activity of the accused separators, that does not absolve it from past infringement.

193. Senior-California, a “branch office,” is shown to potential customers as having official signage and a reception area:

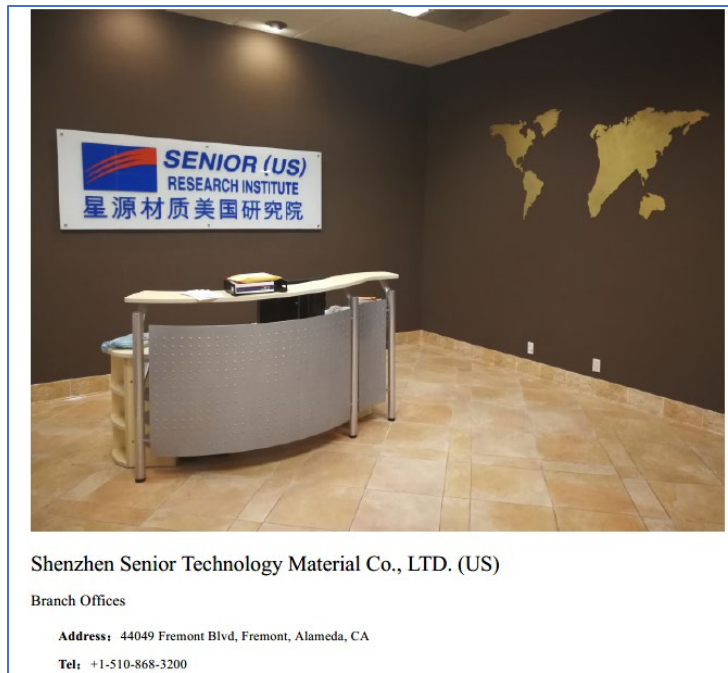


Exhibit T, attached hereto. Senior-California’s listed information includes a California telephone number for customers interested in purchasing Senior-China’s separators. *Id.*

194. Senior-California, also known as “Senior (US)” (*see e.g., Exhibit T*), is described as a Research and Development center for separators. **Exhibit V**, **Exhibit HH**, and **Exhibit II**, attached hereto. Senior-California’s Statement of Information filed with the Secretary of State of California also lists Senior-California’s business as research and development (“[d]escribe the type of business of the corporation . . . Research & Development”). **Exhibit W**, attached hereto.

1 195. In business documents and corporate filings in California, Senior-California called
2 its business not only “research and development” but also “sales of lithium-ion battery membranes
3 [separators]” and lists its products as “Shenzhen Senior . . . Mat[erials]”, *i.e.*, Senior-China’s
4 separators. **Exhibit X**, attached hereto. In sales presentations, Senior-California (part of the San
5 Francisco Bay Area) is shown as a [REDACTED]:



17 [REDACTED]

18 196. Indeed, a consultant for Celgard called the Senior-California telephone number
19 listed on the website and shown in the “branch office” photo above (in Paragraph 193 and was able
20 to purchase the accused separators.

21 197. Mr. Jian “Jack” Chen, who assisted in the sale of accused separators to the consultant
22 for Celgard, is Senior-California’s [REDACTED]

23 [REDACTED]

24 [REDACTED].

25 198. Mr. Chen, on behalf of Senior-California, has been part [REDACTED]

26 [REDACTED].

27 199. Likewise, Senior-California has been involved in [REDACTED]

28 [REDACTED]

1 200. [REDACTED]

8 [REDACTED] **Exhibit EE**, attached hereto.

9 201. [REDACTED]

15 202. Further, as the U.S. extension of Senior-China, Senior-California has access to all
16 of the accused products and to information necessary for sales and trials of the accused products
17 and is funded by Senior-China. Part of this access arises from Senior-California's manager (Jian
18 "Jack" Chen), who [REDACTED]

21 [REDACTED]. *See e.g.*, **Exhibit FF**, attached

22 hereto.

23 203. Likewise, this access also arises from Dr. Steven Zhang—the former Celgard
24 employee who absconded with Celgard's technology and confidential, proprietary and trade secret
25 information—and who is currently Chief Technology Officer of Senior-China. He has listed his
26 address at the same physical location as Senior-California (from April 2019 until August 2019),
27 and he likewise uses [REDACTED]

28 [REDACTED]. **Exhibit GG**, attached hereto.

204. Senior-California has used its access to Senior-China's resources (for example its products and product information) to make offers for sales and for sales to customers and potential customers.

205. Senior-California has also used its access to Senior-China to induce sales of accused products and to induce the development of models of accused separators to sell.

206. Senior-California has also engaged in making, using, selling, offering to sell, distributing, importing, or exporting Senior-China's battery separators.

F. Farasis' Relationship with Celgard

207. At least Farasis Energy (Gan Zhou), Inc., Farasis Energy Inc., and Celgard previously had a long-standing business relationship together, with Celgard supplying its separators for Farasis' products.

[REDACTED]

209. Further, since 2015, Farasis Energy (Gan Zhou), Inc. and Celgard have had a supply agreement. On or around May 4, 2018, Celgard and Farasis Energy (Gan Zhou), Inc. entered into the latest supply agreement, the 2018 Supply Agreement. The 2018 Supply Agreement is a valid and binding agreement for Celgard to be the provider of separators to at least Farasis Energy (Gan Zhou), Inc.

210. The 2018 Supply Agreement was effective through March 31, 2019, and included a provision that during the contract term, Buyer (Farasis Energy (Gan Zhou), Inc.) agreed to purchase

1 certain Celgard separator products from Seller (Celgard) of a certain specified amount through
2 March 31, 2019.

3 211. In January 2019, during the term of the 2018 Supply Agreement, Farasis Energy
4 (Gan Zhou), Inc. told Celgard it was ceasing purchases from Celgard, it refused to pay for
5 specialized product already made for it, and announced it was going to purchase Senior-China's
6 separators instead.

7 212. On or around January 1, 2019, Farasis Energy (Gan Zhou), Inc. and Senior-China
8 entered into a supply agreement for Senior-China to supply infringing separators to Farasis Energy
9 (Gan Zhou), Inc. That contract was during the term of the 2018 Supply Agreement, pursuant to
10 which Farasis Energy (Gan Zhou), Inc. was to be purchasing certain Celgard separators at
11 contracted minimum quantities. The result of this new arrangement with Senior-China was a breach
12 of the 2018 Supply Agreement.

13 213. As a result of Senior-China and Farasis Energy (Gan Zhou), Inc.'s conduct in
14 replacing Celgard as the separator supplier, Celgard lost millions of m² of business per year from
15 Farasis Energy (Gan Zhou), Inc. and lost a then-valuable supply relationship.

16 FIRST CLAIM FOR RELIEF

17 Infringement of the '520 patent by Senior-China, Senior-California, and Sun Town

18 214. Celgard repeats and incorporates by reference all prior allegations of this Complaint
19 as if fully set forth herein.

20 215. Celgard is the owner by assignment of all rights, title, and interest in and to the '520
21 patent.

22 216. The '520 patent is valid and enforceable.

23 217. In violation of 35 U.S.C. § 271(a), each Senior-China, Senior-California and Sun
24 Town has infringed and continues to infringe, directly or indirectly, at least Claim 12 of the '520
25 patent by making, using, offering for sale, selling, and/or importing in or into the United States
26 ceramic coated separators covered by at least Claim 12 of the '520 patent, including, but not limited
27 to, at least Senior's ceramic coated separators identified above by model number.
28

218. Specifically, by example, and in violation of 35 U.S.C. § 271(a), Senior-China, Senior-California and Sun Town has infringed and continues to infringe at least Claim 12 of the '520 patent by making, using, offering for sale, selling, and/or importing in or into the United States ceramic coated separators covered by at least Claim 12 of the '520 patent, including, but not limited to, at least Senior's ceramic coated separators identified above by series and/or model number in Paragraph 170.

219. Also by example, Senior-China has offered for sale, sold, sampled, and shipped Senior's infringing ceramic coated separators covered by at least Claim 12 of the '520 patent, to entities in the United States, including in California, and including but not limited to, at least Senior's ceramic coated separators identified above by model number in Paragraph 170. This includes the offers, sales, samples, and shipments to [REDACTED] identified above in Paragraphs 151-163.

220. Lithium-ion batteries that contain Senior's ceramic coated separators identified above by model number in Paragraph 170 include Farasis' lithium-ion batteries found in the United States, such as, for example, [REDACTED]
[REDACTED]
FEI Part No. PCM102064-D01 and ZF7.2 in Zero Motorcycles' FX model, that include Senior's infringing ceramic coated separators identified above by model number in Paragraph 170, [REDACTED], and/or other same or similar separators. Senior knew its separators sold to Farasis were destined for the United States and intended for its separators sold to Farasis and other battery manufacturers to pervade the United States.

221. As a direct and proximate result of Patent Defendants' infringement of the '520 patent, Celgard has been injured and has been caused significant harm and financial damages.

222. Senior-China, Senior-California and at least Sun Town have also induced and continue to induce infringement of at least Claim 12 of the '520 patent in violation of 35 U.S.C. § 271(b).

223. Senior-China, Senior-California and Sun Town induce their customers, purchasers, users, and/or developers of Senior's separators to infringe at least Claim 12 of the '520 patent (or

1 its predecessor, the '586 patent), and do so with specific intent, by providing instructions,
2 directions, information, and/or knowledge on how to use their separators, and/or incorporate their
3 separators into other products, such as lithium-ion batteries.

4 224. Senior-China, Senior-California and Sun Town have had knowledge of the '520
5 patent (or its predecessor, the '586 patent) at least as early as February 25, 2019. Nevertheless,
6 Senior-China, Senior-California and Sun Town have continued to induce their customers,
7 purchasers, users, and/or developers to infringe. They do so through documentation accompanying
8 Senior's separators, technical support, advertisements, datasheets, demonstrations, and/or tutorials.

9 225. As a direct and proximate result of Senior-China's, Senior-California's and Sun
10 Town's induced infringement of the '520 patent, Celgard has been injured and has been caused
11 significant harm and financial damages.

12 226. Each Patent Defendant, without Celgard's permission, has been and is presently
13 infringing at least Claim 12 of the '520 patent in violation of 35 U.S.C. § 271(c), by selling or
14 offering to sell material or apparatuses for use in practicing the '520 patent (and its predecessor,
15 the '586 patent) that are a material part of the invention to their customers, purchasers, users, and/or
16 developers.

17 227. The components sold or offered for sale by each Patent Defendant have no
18 substantial non-infringing uses. Further, they are not staple articles of commerce and constitute a
19 material part of the invention. Thus, Patent Defendants knew or should have known that the
20 products for which their components were made was protected by the '520 patent (and its
21 predecessor, the '586 patent), and yet Patent Defendants infringed upon the '520 patent in spite of
22 this knowledge.

23 228. As such, each Patent Defendant has contributorily infringed and continues to
24 infringe the '520 patent, as set forth herein, knowing that the materials or components would be
25 made or adapted for use in an infringing manner.

26 229. For example, and without limitation, Farasis' lithium-ion batteries that contain the
27 Senior infringing separators and/or other same or similar separators are used in end-user products,
28

1 including, those manufactured, used, offered for sale, sold, imported into, or exported from the
2 United States by Zero Motorcycles.

3 230. Farasis' lithium-ion batteries that contain the Senior infringing separators and/or
4 other same or similar separators are not staple articles or commodities of commerce suitable for
5 non-infringing use and are especially made for or adapted for use in infringing the Asserted Patents.
6 Farasis' lithium-ion batteries that contain the Senior infringing separators and/or other same or
7 similar separators cannot be modified by the end user so as not to be infringing the Asserted Patents.
8 They are only designed to be used in an infringing manner. By contributing a material part of the
9 infringing products' manufacturing, selling, offering for sale, using, and/or importing into, and/or
10 exporting from the United States by their OEMs, importers, exporters, customers, distributors,
11 resellers and others, Patent Defendants have been and are now directly and/or indirectly infringing
12 the Asserted Patents under 35 U.S.C. § 271(c).

13 231. Patent Defendants' infringing acts have been and are the actual and proximate cause
14 of damage to Celgard, and Celgard has sustained damages and harm and will continue to sustain
15 damages and harm as a result of Patent Defendants' infringement of the '520 patent (and its
16 predecessor, the '586 patent).

17 232. Patent Defendants' continued infringement after having knowledge of the patents is
18 in spite of the objectively high likelihood that their activities constitute infringement of a valid
19 patent, and this risk was either known or so obvious that it should have been known to Patent
20 Defendants. Thus, Patent Defendants continued infringement at least as of these dates is willful and
21 deliberate.

22 233. Products that contain infringing separators and/or other same or similar separators
23 include at least Farasis-China's and Farasis-US's lithium-ion batteries, such as, for example,
24 [REDACTED]
25 [REDACTED] FEI Part No.
26 PCM102064-D01 and ZF7.2 in Zero Motorcycles' FX model, which are offered for sale and sold
27 to manufacturers, such as Zero Motorcycles, and/or other same or similar products.
28

234. Celgard has suffered and continues to suffer damages and irreparable harm as a result of Patent Defendants' past and ongoing infringement.

235. Celgard is entitled to damages for Patent Defendants' infringement of the '520 patent, including, but not limited to, damages pursuant to 35 U.S.C. §§ 284, 285.

SECOND CLAIM FOR RELIEF

Infringement of the '867 patent by Senior-China, Senior-California, and Sun Town

236. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

237. Celgard is the owner by assignment of all rights, title, and interest in and to the '867 patent.

238. The '867 patent is valid and enforceable.

239. In violation of 35 U.S.C. § 271(a), each Patent Defendant has infringed and continues to infringe, directly or indirectly, at least Claims 17 and 18 of the '867 patent by making, using, offering for sale, selling, and/or importing in or into the United States separators covered by at least Claims 17 and 18 of the '867 patent, including, but not limited to, at least Senior-China's separators identified above by model number in Paragraph 171.

240. Specifically, for example, and in violation of 35 U.S.C. § 271(a), Senior-China, Senior-California and Sun Town has infringed and continues to infringe at least Claims 17 and 18 of the '867 patent by making, using, offering for sale, selling, and/or importing in or into the United States separators covered by at least Claims 17 and 18 of the '867 patent, including, but not limited to, at least Senior-China's separators identified above by model number in Paragraph 171.

241. Also by example, Senior-China has offered for sale, sold, sampled, and shipped Senior's infringing ceramic coated separators covered by at least Claims 17-18 of the '867 patent, to entities in the United States, including in California, and including but not limited to, at least Senior's ceramic coated separators identified above by model number in Paragraph 171. This includes the offers, sales, samples, and shipments to [REDACTED] identified above in Paragraphs 151-163.

1 242. Lithium-ion batteries that contain Senior's ceramic coated separators identified
2 above by model number in Paragraph 171 include Farasis' lithium-ion batteries found in the United
3 States, such as, for example, [REDACTED]
4 [REDACTED]
5 FEI Part No. PCM102064-D01 and ZF7.2 in Zero Motorcycles' FX model, that include Senior's
6 infringing ceramic coated separators identified above by model number in Paragraph 171, [REDACTED]
7 [REDACTED], and/or other same or similar separators. Senior knew its separators sold to Farasis and
8 other battery manufacturers were destined for the United States and intended for its separators sold
9 to Farasis to pervade the United States.

10 243. As a direct and proximate result of each of Patent Defendant's infringement of the
11 '867 Patent, Celgard has been injured and has been caused significant harm and financial damages.

12 244. Senior-China, Senior-California and Sun Town have also induced and continue to
13 induce infringement of at least Claims 17 and 18 of the '867 patent in violation of 35 U.S.C. §
14 271(b).

15 245. Senior-China, Senior-California and Sun Town induce their customers, purchasers,
16 users, and/or developers of their separators to infringe at least Claims 17 and 18 of the '867 patent,
17 and do so with specific intent, by providing instructions, directions, information, and/or knowledge
18 on how to use their separators, and/or incorporate their separators into other products, such as
19 lithium-ion batteries.

20 246. Senior-China, Senior-California and Sun Town have had knowledge of the '867
21 patent at least as early as September 16, 2019. Nevertheless, Senior-China, Senior-California and
22 Sun Town have continued to induce their customers, purchasers, users, and/or developers to
23 infringe. They do so through documentation accompanying their separators, their technical support,
24 advertisements, datasheets, demonstrations, and/or tutorials.

25 247. As a direct and proximate result of Senior-China, Senior-California's and Sun
26 Town's induced infringement of the '867 Patent, Celgard has been injured and has been caused
27 significant harm and financial damages.
28

1 248. Each Patent Defendant, without Celgard's permission, has been and is presently
2 infringing at least Claims 17 and 18 of the '867 patent in violation of 35 U.S.C. § 271(c), by selling
3 or offering to sell material or apparatuses for use in practicing the '867 patent that is a material part
4 of the invention to their customers, purchasers, users, and/or developers.

5 249. The components sold or offered for sale by each Patent Defendant has no substantial
6 non-infringing uses. Further, they are not staple articles of commerce and constitute a material part
7 of the invention. Thus, each Patent Defendant knew or should have known that the combination for
8 which their components were made was protected by the '867 patent and yet Patent Defendants
9 infringed upon the '867 patent in spite of this knowledge.

10 250. As such, Patent Defendants have contributorily infringed and continue to infringe
11 the '867 patent, as set forth herein, knowing that the materials or components would be made or
12 adapted for use in an infringing manner.

13 251. For example, and without limitation, Farasis' lithium-ion batteries that include
14 Senior infringing separators and/or other same or similar separators are used in end-user products,
15 including, those manufactured, used, offered for sale, sold, imported into, or exported from the
16 United States by Zero Motorcycles.

17 252. Farasis' lithium-ion batteries that include Senior infringing separators and/or other
18 same or similar separators are not staple articles or commodities of commerce suitable for non-
19 infringing use and are especially made for or adapted for use in infringing the Asserted Patents.
20 Farasis' lithium-ion batteries that include Senior infringing separators and/or other same or similar
21 separators cannot be modified by the end user so as not to be infringing the Asserted Patents. They
22 are only designed to be used in an infringing manner. By contributing a material part of the
23 infringing products' manufacturing, selling, offering for sale, using, and/or importing into, and/or
24 exporting from the United States by their OEMs, importers, exporters, customers, distributors,
25 resellers and others, Patent Defendants have been and are now directly and/or indirectly infringing
26 the Asserted Patents under 35 U.S.C. § 271(c).

27 253. Patent Defendants' continued infringement on or after knowledge of the '867 patent
28 is in spite of the objectively high likelihood that their activities constitute infringement of a valid

1 patent, and this risk was either known or so obvious that it should have been known to Patent
2 Defendants. Thus, Patent Defendants' continued infringement at least as of the filing of the
3 Complaint is willful and deliberate.

4 254. Products that contain infringing Senior-China separators and/or other same or
5 similar separators include at least Farasis-China's and Farasis-US's lithium-ion batteries, such as,
6 for example, [REDACTED] [REDACTED] [REDACTED] [REDACTED]

7 [REDACTED] FEI
8 Part No. PCM102064-D01 and ZF7.2 in Zero Motorcycles' FX model, which are offered for sale
9 and sold to manufacturers, such as Zero Motorcycles, and/or other same or similar separators.

10 255. Celgard has suffered and continues to suffer damages and irreparable harm as a
11 result of Patent Defendants' past and ongoing infringement. Unless and until Patent Defendants'
12 infringement is enjoined, Celgard will continue to be damaged and irreparably harmed.

13 256. Celgard is entitled to all remedies at law and equity, including, but not limited to, an
14 injunction against Patent Defendants' infringement of the '867 patent pursuant to 35 U.S.C. § 283.

15 257. Celgard is entitled to damages for Patent Defendants' infringement of the '867
16 patent, including, but not limited to, damages pursuant to 35 U.S.C. §§ 284, 285.

17 **THIRD CLAIM FOR RELIEF**

18 **Misappropriation of Trade Secrets in Violation of the Defend Trade Secrets Act by Senior-** 19 **China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven** 20 **Zhang**

21 258. Celgard repeats and incorporates by reference all prior allegations of this Complaint
22 as if fully set forth herein.

23 259. In violation of 18 U.S.C. § 1836, *et seq.*, each of the Trade Secret Defendants
24 (Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven
25 Zhang) have misappropriated trade secrets from Celgard related to Celgard's separators products,
26 a product used in or intended for use in interstate or foreign commerce.

27 260. Celgard owns and possesses certain trade secrets, proprietary, and confidential
28 information, as alleged herein.

261. Celgard's trade secrets, proprietary, and confidential information – related to at least its technical, logistical, and operational plans, manuals, programs, procedures, and the like concerning its resin technology, its dry process technology, including manufacturing methods, techniques, SOCs, SOPs, and processes, materials, performance issues (such as safety, temperature, battery life), suppliers, preferred resins, inspection and testing, resin properties, precursor properties, internal specifications, technical service, custom equipment, operating procedures, optimization of parameters, design, selling and marketing its products, and obtaining contracts and business with its customers, and other “know-how” – constitute trade secrets as defined by the Defend Trade Secrets Act.

262. Celgard maintains its trade secrets, proprietary, and confidential information as confidential and does not share them with competitors or the public.

263. Celgard has undertaken strict efforts to maintain the secrecy of its trade secrets, proprietary, and confidential information. These efforts include, but are not limited to, requiring its employees to sign confidentiality agreements as conditions of their employment, maintaining confidential information on a secure server, extensive training, adherence with its policies, implementing robust document control systems to protect its trade secrets, proprietary, and confidential information, and restricting access to and protecting its trade secrets, proprietary, and confidential information.

264. Celgard's trade secrets, proprietary, and confidential information described herein derive independent economic value from not being generally known to, and not being readily ascertainable through proper means by, others who could obtain economic value from the disclosure or use of the information.

265. Celgard's trade secrets, proprietary, and confidential information were made available to Dr. Steven Zhang during his employment with Celgard under circumstances requiring him to maintain the trade secrets and confidential information in confidence.

266. The Trade Secret Defendants knew or should have known under the circumstances that the information misappropriated constituted trade secrets, proprietary, and confidential information.

1 267. Dr. Steven Zhang worked at Celgard from sometime in 2005 until October 2016.
2 He learned, worked with, and helped develop trade secrets, proprietary, and confidential
3 information while in North Carolina at Celgard.

4 268. The trade secrets, proprietary, and confidential information that the Trade Secret
5 Defendants have used and are using are property of Celgard – property that was developed in North
6 Carolina, resides North Carolina, and is controlled by Celgard in North Carolina.

7 269. Senior reached into North Carolina in dealing with Dr. Steven Zhang, and Dr. Steven
8 Zhang misappropriated Celgard's trade secrets and confidential information for Senior from North
9 Carolina.

10 270. The result of the Trade Secret Defendants' actions have been to irreparably harm
11 Celgard.

12 271. Products containing separators that were made with Celgard's misappropriated trade
13 secrets, proprietary, and confidential information are offered for sale and/or sold in the United
14 States, and elsewhere around the world.

15 272. Dr. Steven Zhang lied to Celgard about going to a competitor while he was still in
16 North Carolina. Dr. Steven Zhang knew that he was not to disclose or use any trade secrets,
17 proprietary, or confidential information he had learned while at Celgard.

18 273. The Trade Secret Defendants have used and continue to use Celgard's trade secrets,
19 proprietary, and confidential information, without Celgard's consent and in violation of Celgard's
20 rights.

21 274. The Trade Secret Defendants, unless enjoined, will continue to misappropriate and
22 use Celgard's trade secrets, proprietary, and confidential information for their own benefit and to
23 Celgard's detriment.

24 275. As a direct and proximate result of the Trade Secret Defendants' conduct, Celgard
25 has been damaged in an amount to be proven at trial. Celgard also has incurred, and will continue
26 to incur, additional damages, costs, and expenses, including attorneys' fees and other costs, as a
27 result of the Trade Secret Defendants' misappropriation.
28

276. If the Trade Secret Defendants' conduct is not stopped, Celgard will continue to suffer competitive harm and irreparable injury. Because Celgard's remedy at law is inadequate, Celgard seeks, in addition to damages, temporary, preliminary, and permanent injunctive relief to recover and protect its trade secrets, proprietary, and confidential information and other legitimate business interests.

277. In performing the conduct described herein, the Trade Secret Defendants acted willfully and maliciously, intending to injure Celgard and to wrongfully obtain an advantage at Celgard's expense and detriment. As a result of this conduct, Celgard is entitled to an award of exemplary damages as well as attorneys' fees and costs incurred in this action.

FOURTH CLAIM FOR RELIEF

Misappropriation of Trade Secrets in Violation of N.C. Gen. Stat. § 66-152, *et seq.* by Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang

278. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

279. In violation of N.C. Gen. Stat. § 66-152, *et seq.*, each of the Trade Secret Defendants (Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang) have misappropriated trade secrets from Celgard related to Celgard's separators products.

280. Celgard owns and possesses certain trade secrets, proprietary, and confidential information, as alleged herein.

281. Celgard's trade secrets, proprietary, and confidential information – related to at least its technical, logistical, and operational plans, manuals, programs, procedures, and the like concerning its resin technology, its dry process technology, including manufacturing methods, techniques, SOCs, SOPs, and processes, materials, performance issues (such as safety, temperature, battery life), suppliers, preferred resins, inspection and testing, resin properties, precursor properties, internal specifications, technical service, custom equipment, operating procedures, optimization of parameters, design, selling and marketing its products, and obtaining contracts and

1 business with its customers, and other “know-how” – constitute trade secrets defined by North
2 Carolina’s Trade Secrets Protection Act.

3 282. Celgard maintains its trade secrets, proprietary, and confidential information as
4 confidential and does not share them with competitors or the public.

5 283. Celgard has undertaken strict efforts to maintain the secrecy of its trade secrets,
6 proprietary, and confidential information. These efforts include, but are not limited to, requiring its
7 employees to sign confidentiality agreements as conditions of their employment, maintaining
8 confidential information on a secure server, extensive training, adherence with its policies,
9 implementing robust document control systems to protect its trade secrets, proprietary, and
10 confidential information, and restricting access to and protecting its trade secrets, proprietary, and
11 confidential information.

12 284. Celgard’s trade secrets, proprietary, and confidential information described herein
13 derive independent economic value from not being generally known to the public or others who
14 could obtain economic value from their disclosure or use (such as competitors).

15 285. Celgard’s trade secrets, proprietary, and confidential information were made
16 available to Dr. Steven Zhang during his employment with Celgard in North Carolina under
17 circumstances requiring him to maintain the trade secrets, proprietary, and confidential information
18 in confidence.

19 286. The Trade Secret Defendants knew or should have known under the circumstances
20 that the information misappropriated constituted trade secrets, proprietary, and confidential
21 information.

22 287. Dr. Steven Zhang worked at Celgard from sometime in 2005 until October 2016.
23 He learned, worked with, and helped develop trade secrets, proprietary, and confidential
24 information while in North Carolina at Celgard.

25 288. Dr. Steven Zhang resided in and owned property in North Carolina at least during
26 the time he worked at Celgard. On information and belief, Dr. Steven Zhang continues to own
27 property in North Carolina.
28

289. The trade secrets, proprietary, and confidential information that Trade Secret Defendants have used and are using are property of Celgard – property that was developed in North Carolina, resides North Carolina, and is controlled by Celgard in North Carolina.

290. Dr. Steven Zhang acquired Celgard’s trade secrets, proprietary, and confidential information while he was at Celgard in North Carolina.

291. Dr. Steven Zhang used and/or disclosed Celgard trade secrets, proprietary, and confidential information while in North Carolina.

292. Senior reached into North Carolina in dealing with Dr. Steven Zhang, and Dr. Steven Zhang misappropriated Celgard’s trade secrets, proprietary, and confidential information from North Carolina.

293. The result of Senior’s and Dr. Steven Zhang’s actions have been to irreparably harm Celgard.

294. Products containing separators that were made with Celgard’s misappropriated trade secrets, proprietary, and confidential information are offered for sale and/or sold in North Carolina.

295. Dr. Steven Zhang lied to Celgard about going to a competitor while he was still in North Carolina. Dr. Steven Zhang knew that he was not to disclose or use any trade secrets, proprietary, or confidential information he had learned while at Celgard.

296. By dealing with Dr. Steven Zhang in North Carolina, Senior purposefully created a contact with North Carolina to commit unlawful actions, such that their actions began in North Carolina and ended with harm in North Carolina to Celgard.

297. Celgard is informed and believes, and on that basis alleges, that the Trade Secret Defendants have used and continue to use Celgard’s trade secrets, proprietary, and confidential information, without Celgard’s consent and in violation of Celgard’s rights.

298. Celgard is informed and believes, and on that basis alleges, that the Trade Secret Defendants, unless enjoined, will continue to misappropriate and use Celgard’s trade secrets, proprietary, and confidential information for their own benefit and to Celgard’s detriment.

299. As a direct and proximate result of the Trade Secret Defendants’ conduct, Celgard has been damaged in an amount to be proven at trial. Celgard also has incurred, and will continue

1 to incur, additional damages, costs, and expenses, including attorneys' fees and costs, as a result of
2 the Trade Secret Defendants' misappropriation.

3 300. If the Trade Secret Defendants' conduct is not stopped, Celgard will continue to
4 suffer competitive harm and irreparable injury. Because Celgard's remedy at law is inadequate,
5 Celgard seeks, in addition to damages, temporary, preliminary, and permanent injunctive relief to
6 recover and protect its trade secrets, proprietary, and confidential information and other legitimate
7 business interests.

8 301. Pursuant to N.C. Gen. Stat. § 66-154(a), Celgard is entitled to an injunction to
9 prohibit the Trade Secret Defendants from using, disclosing and/or otherwise benefiting from
10 Celgard's trade secrets, proprietary, and confidential information, to eliminate any commercial
11 advantage that the Trade Secret Defendants may otherwise derive from their misappropriation, and
12 to require the Trade Secret Defendants to immediately return to Celgard all trade secrets,
13 proprietary, and confidential information, and any other misappropriated materials or information.

14 302. Pursuant to N.C. Gen. Stat. § 66-154(b), Celgard is entitled to recover its damages
15 incurred by virtue of the Trade Secret Defendants' wrongful misappropriation of its trade secrets,
16 proprietary, and confidential information, in addition to disgorgement of all amounts by which the
17 Trade Secret Defendants have been unjustly enriched, or the payment of the economic loss incurred
18 by Celgard, in an amount to be proven at trial.

19 303. In performing the conduct described herein, the Trade Secret Defendants acted
20 willfully and maliciously, intending to injure Celgard and to wrongfully obtain an advantage at
21 Celgard's expense. Under N.C. Gen. Stat. § 66-154(c), Celgard is entitled to all remedies available
22 under the law to compensate Celgard, including, but not limited to, an award of punitive damages
23 against the Trade Secret Defendants.

24 304. Pursuant to N.C. Gen. Stat. § 66-154(d), Celgard also is entitled to an award of its
25 attorneys' fees and costs incurred in this action.

26 305. Because Celgard's remedy at law is inadequate, Celgard further is entitled to
27 preliminary and permanent injunctive relief to recover and protect its confidential, proprietary, and
28 trade secret information and other legitimate business interests.

FIFTH CLAIM FOR RELIEF**Misappropriation of Trade Secrets in Violation of Cal. Civ. Code. § 3426, *et seq.* by Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang**

306. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

307. In violation of Cal. Civ. Code. § 3426, *et seq.*, each of the Trade Secret Defendants (Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang) have misappropriated trade secrets from Celgard related to Celgard's separators products.

308. Celgard owns and possesses certain trade secrets, proprietary, and confidential information, as alleged above.

309. Celgard's trade secrets, proprietary, and confidential information – related to at least its technical, logistical, and operational plans, manuals, programs, procedures and the like concerning its resin technology, its dry process technology, including manufacturing methods, techniques, SOCs, SOPs, and processes, materials, performance issues (such as safety, temperature, battery life), suppliers, preferred resins, inspection and testing, resin properties, precursor properties, internal specifications, technical service, custom equipment, operating procedures, optimization of parameters, design, selling and marketing its products, and obtaining contracts and business with its customers, and other “know how” constitute trade secrets as described above and defined by California's Uniform Trade Secrets Act.

310. Celgard maintains its trade secrets, proprietary, and confidential information as confidential and does not share them with competitors or the public.

311. Celgard has undertaken strict efforts to maintain the secrecy of the trade secrets at issue, as discussed above. These efforts include, but are not limited to, requiring its employees to sign confidentiality agreements as conditions of their employment, maintaining confidential information on a secure server, extensive training, adherence with its policies, implementing robust document control systems to protect its trade secrets, proprietary, and confidential information, and restricting access to and protecting its trade secrets, proprietary, and confidential information.

1 312. Celgard's trade secret information described herein derives independent economic
2 value from not being generally known to the public or others who could obtain economic value
3 from their disclosure or use (such as competitors).

4 313. Such confidential information constitutes trade secrets within the meaning of
5 California Civil Code Section 3426.1.

6 314. Celgard's confidential, proprietary, and trade secret information was made available
7 to Dr. Steven Zhang during his employment with Celgard under circumstances requiring him to
8 maintain the information in confidence.

9 315. Trade Secret Defendants (Senior-China, Senior-California, Sun Town, Global
10 Venture and Dr. Steven Zhang) misappropriated Celgard's trade secret information at least by
11 acquiring such information improperly from Dr. Steven Zhang.

12 316. Trade Secret Defendants knew or should have known under the circumstances that
13 the information misappropriated was trade secret information.

14 317. Celgard is informed and believes, and on that basis alleges, that Trade Secret
15 Defendants are now using Celgard's trade secrets, without its consent, to produce many of its
16 separators, including by providing these separators to Farasis and other battery manufacturers.

17 318. Trade Secret Defendants' misconduct detailed herein constitutes misappropriation
18 of Celgard's trade secrets and violates Section 3426 et seq. of the California Civil Code. As a direct
19 and proximate result of Trade Secret Defendants' conduct, Celgard has been damaged in an amount
20 to be proven at trial. Celgard also has incurred, and will continue to incur, additional damages,
21 costs, and expenses, including attorneys' fees and costs, as a result of Trade Secret Defendants'
22 misappropriation. As a further proximate result of the misappropriation and use of Celgard's trade
23 secrets, Trade Secret Defendants were unjustly enriched.

24 319. Pursuant to Section 3426.2 of the California Civil Code, Celgard is entitled to an
25 injunction to prohibit Senior from using, disclosing and/or otherwise benefiting from Celgard's
26 trade secrets, to eliminate any commercial advantage that Trade Secret Defendants may otherwise
27 derive from their misappropriation, and to require Trade Secret Defendants to immediately return
28

1 to Celgard all trade secret, know-how, and confidential and/or proprietary information, documents,
2 and any other misappropriated materials.

3 320. Pursuant to Section 3426.3 of the California Civil Code, Celgard is entitled to
4 recover its damages incurred by virtue of Trade Secret Defendants' wrongful misappropriation of
5 its trade secrets, in addition to disgorgement of all amounts by which Trade Secret Defendants have
6 been unjustly enriched, or the payment of a reasonable royalty, in an amount to be proven at trial.

7 321. In performing the conduct described herein, Trade Secret Defendants acted willfully
8 and maliciously, intending to injure Celgard and to wrongfully obtain an advantage at Celgard's
9 expense. Under Section 3426.3 of the California Civil Code, Celgard is entitled to all remedies
10 available under the law to compensate Celgard, including, but not limited to, an award of exemplary
11 damages against Trade Secret Defendants.

12 322. Pursuant to Section 3426.4 of the California Civil Code, Celgard also is entitled to
13 an award of its attorneys' fees and costs incurred in this action.

14 323. Because Celgard's remedy at law is inadequate, Celgard further is entitled to
15 preliminary and permanent injunctive relief to recover and protect its confidential, proprietary, and
16 trade secret information and other legitimate business interests.

17 **SIXTH CLAIM FOR RELIEF**

18 **Violation of N.C. Gen. Stat. § 75-1.1, et seq. by Senior-China, Senior-California, Sun Town, 19 Senior-California, Global Venture, and Dr. Steven Zhang**

20 324. Celgard repeats and incorporates by reference all prior allegations of this Complaint
21 as if fully set forth herein.

22 325. N.C. Gen. Stat. § 75-1.1, et seq. prohibits unfair methods of competition and unfair
23 or deceptive practices that are in or affect commerce.

24 326. The acts described herein above constitute unlawful, unfair, and/or fraudulent
25 business practices and unfair competition prohibited under N.C. Gen. Stat. § 75-1.1, *et seq.*

26 327. As a further basis for this claim, Celgard avers that should any of its trade secrets,
27 proprietary, and confidential information not qualify as trade secrets under federal or state law, the
28 unlawful taking and using of such information by the Trade Secret Defendants (Senior-China,

1 Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang) is an
2 unfair and deceptive trade practice under N.C. Gen. Stat. § 75-1.1 *et seq.*

3 328. The Trade Secret Defendants have benefited from these acts in the form of unfair
4 advantages in developing, producing, and selling their separators, including in taking Celgard's
5 customers, depriving Celgard of exclusive use of its trade secrets, proprietary, and confidential
6 information, and profiting unfairly at Celgard's expense.

7 329. As a result of such acts, Celgard has suffered damage in an amount as yet unknown,
8 and if the Trade Secret Defendants' conduct is not stopped, Celgard will continue to suffer
9 irreparable injury and significant damages, in an amount to be proven at trial.

10 330. Pursuant to N.C. Gen. Stat. § 75-1.1 and § 75-16, Celgard is entitled to recover
11 damages as it may prove at trial and to have those damages trebled. Celgard is also entitled to
12 recover its reasonable attorneys' fees pursuant to N.C. Gen. Stat. § 75-16.1.

13 331. Further, the Trade Secret Defendants' unfair and deceptive trade practices have
14 caused Celgard to suffer and absent intervention of the Court, will cause Celgard to continue to
15 suffer irreparable harm for which there is no adequate remedy at law, thus entitling Celgard to
16 injunctive relief.

17 SEVENTH CLAIM FOR RELIEF

18 **Violation of Violation of Cal. Bus & Prof. Code § 17200, *et seq.* by Senior-China, Senior- 19 California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang**

20 332. Celgard repeats and incorporates by reference all prior allegations of this Complaint
21 as if fully set forth herein.

22 333. California Business and Professions Code section 17200 prohibits unfair
23 competition in the form of any unlawful, unfair, or fraudulent business practice.

24 334. Trade Secret Defendants (Senior-China, Senior-California, Sun Town, Global
25 Venture and Dr. Steven Zhang) knowingly performed acts to pirate away the fruits of Celgard's
26 customer base, including, but not limited to: interfering with the prospective economic advantage
27 Celgard has with its customers, deceiving the customers, diverting and attempting to divert the
28 customers, such as Farasis, through use of trade secrets, proprietary, and confidential information

misappropriated from Celgard, and by engaging in other acts alleged herein. These acts constitute unlawful, unfair, and/or fraudulent business practices and unfair competition prohibited under California Business and Professions Code Sections 17200 *et seq.*

335. As alleged more fully above, Trade Secret Defendants took Celgard's trade secrets, proprietary, and confidential information related to, but not limited to, its technical, logistical, and operational plans, manuals, programs, procedures and the like concerning its resin technology, its dry process technology, including manufacturing methods, techniques, SOCs, SOPs, and processes, materials, performance issues (such as safety, temperature, battery life), suppliers, preferred resins, inspection and testing, resin properties, precursor properties, internal specifications, technical service, custom equipment, operating procedures, optimization of parameters, design, selling and marketing its products, and obtaining contracts and business with its customers, and other "know-how."

336. Trade Secret Defendants have benefited from these acts in the form of unfair advantages in developing, producing, and selling their separators, including to Farasis and other battery manufacturers.

337. As a result of such acts, Celgard has suffered damage in an amount as yet unknown, and if Trade Secret Defendants' conduct is not stopped, Celgard will continue to suffer irreparable injury and significant damages, in an amount to be proven at trial.

338. Until relief is granted to Celgard, Celgard will be harmed and Trade Secret Defendants will be unjustly enriched, which unjust enrichment should be disgorged pursuant to allowable remedies under California Business and Professions Code Sections 17200 *et seq.*

EIGHTH CLAIM FOR RELIEF

Civil Conspiracy by Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang

339. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

340. The Trade Secret Defendants have engaged in a civil conspiracy under California and North Carolina common law. The Trade Secret Defendants (Senior-China, Senior-California,

1 Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang) agreed upon Dr. Steven
2 Zhang leaving Celgard to aid in creating separators for Senior with similar or the same properties
3 as Celgard's separators.

4 341. The Trade Secret Defendants used trade secrets, proprietary, and/or confidential
5 information Dr. Steven Zhang acquired during his employment at Celgard to unlawfully create new
6 separators and improved separators for Senior.

7 342. The Trade Secret Defendants agreed to change Dr. Steven Zhang's name to Dr. Bin
8 Wang in a common scheme to prevent Celgard from discovering that Dr. Steven Zhang was
9 working for Senior.

10 343. Dr. Steven Zhang is the Chief Technology Officer at Senior-China and did in fact
11 change his name to Dr. Bin Wang (at least in China).

12 344. The Trade Secret Defendants changed Dr. Steven Zhang's name in a common
13 scheme to prevent Celgard from learning that Dr. Steven Zhang was disclosing and using Celgard's
14 trade secrets, proprietary, and confidential information.

15 345. The Trade Secret Defendants concealed their unlawful actions in a common scheme
16 to allow Senior to poach Celgard's clients without Celgard's knowledge that Senior was unlawfully
17 using Celgard's trade secrets, proprietary, and confidential information.

18 346. Senior did not have separators comparable to Celgard's separators available at the
19 time Dr. Steven Zhang left Celgard's employment.

20 347. Since Dr. Steven Zhang started working with Senior, Senior-China has added at
21 least twenty new separators.

22 348. Senior's separators now have properties similar to or the same as Celgard's
23 separators.

24 349. Dr. Steven Zhang disclosed and used Celgard's trade secrets, proprietary, and
25 confidential information with Senior to create separators having the same or similar properties as
26 Celgard's separators.

27 350. Celgard has been harmed significantly by the Trade Secret Defendants' unlawful
28 actions.

351. Celgard's trade secrets, proprietary, and confidential information provided Celgard with an edge in the separator market. Celgard no longer has this edge as the Trade Secret Defendants have hijacked Celgard's trade secrets, proprietary, and confidential information.

352. Celgard has lost customers and sales, including to Farasis, due to the Trade Secret Defendants' conduct.

353. Celgard has lost potential customers and sales due the Trade Secret Defendants' conduct.

354. Celgard will continue to lose actual and potential customers and sales due to the Trade Secret Defendants' conduct.

355. Celgard has been harmed irreparably by the Trade Secret Defendants' conspiracy as Celgard's reputation, goodwill and share in the market have suffered and the Trade Secret Defendants have caused price erosion (among other irreparable harm).

356. Celgard's reputation, goodwill and market share will continue to be harmed by the Trade Secret Defendants' conduct.

NINTH CLAIM FOR RELIEF

Unjust Enrichment by Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang

357. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

358. The Trade Secret Defendants have been unjustly enriched under California and North Carolina common law. The Trade Secret Defendants (Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang) have been unjustly enriched by unlawfully taking and using Celgard's trade secret, proprietary, and confidential information as described herein above.

359. The Trade Secret Defendants have been unjustly enriched by their unlawful actions at the expense of Celgard, in the form of customer contracts, sales, profits, and/or other benefits. Additionally, Dr. Steven Zhang has been unjustly enriched by his unlawful actions at the expense of Celgard, in the form of money or other reparation.

360. It would be unfair for the Trade Secret Defendants to retain these benefits without Celgard being repaid or compensated.

361. Celgard is entitled to receive payment for the benefits received by the Trade Secret Defendants for their unjust enrichment.

TENTH CLAIM FOR RELIEF

Conversion by Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang

362. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

363. Celgard lawfully owned trade secrets, proprietary, and confidential information as described herein above.

364. Celgard was at all relevant times entitled to the exclusive possession of its trade secrets, proprietary, and confidential information.

365. The Trade Secret Defendants have committed conversion under California and North Carolina common law. The Trade Secret Defendants (Senior-China, Senior-California, Sun Town, Senior-California, Global Venture, and Dr. Steven Zhang) converted Celgard's trade secrets, proprietary, and confidential information for their own use as part of their separator business.

366. The Trade Secret Defendants converted Celgard's trade secrets, proprietary, and confidential information by an unauthorized exercise of a right of ownership over the information and/or improvements in their processes and products and by an unauthorized retention of the information after notice from Celgard.

367. Celgard is entitled to actual damages that are equal to the fair market value of Celgard's trade secrets, proprietary, and confidential information at the time it was converted.

ELEVENTH CLAIM FOR RELIEF

Breach of Nondisclosure Agreement by Dr. Steven Zhang

368. Celgard repeats and incorporates by reference all prior allegations of this Complaint as if fully set forth herein.

1 369. Celgard repeats and incorporates by reference all prior allegations of this Complaint
2 as if fully set forth herein.

3 370. The Nondisclosure Agreement between Celgard and Dr. Steven Zhang is a valid and
4 enforceable contract.

5 371. The Nondisclosure Agreement contains a choice of law provision that states the
6 contract is governed by the laws of South Carolina.

7 372. Celgard and Dr. Steven Zhang knowingly and willingly entered into the
8 Nondisclosure Agreement.

9 373. Celgard has performed all of its material obligations under the Nondisclosure
10 Agreement.

11 374. Dr. Steven Zhang has been reminded of his obligations under this agreement
12 throughout his employment with Celgard. For example, he was required to attend annual trainings
13 regarding his obligations and Celgard's documents containing such protected information that he
14 accessed were clearly marked as confidential and/or proprietary and/or other like designation.

15 375. The Nondisclosure Agreement remains effective and includes a provision that
16 during and after Dr. Steven Zhang's employment with Celgard, Dr. Steven Zhang would keep
17 Celgard's proprietary information (including its trade secrets and confidential information) in the
18 strictest confidence. Dr. Steven Zhang agreed that he would not disclose, transmit, or use any such
19 information without Celgard's consent, even if he left Celgard.

20 376. Dr. Steven Zhang has disclosed, transmitted and/or used Celgard's proprietary
21 information (including its trade secrets and confidential information) without Celgard's consent for
22 Senior's benefit, including, for example, Celgard's selections of raw materials, Celgard's process
23 conditions, Celgard's plant and installation layouts, Celgard's manufacturing know-how, and
24 Celgard's product specifications, among others.

25 377. As a result of Dr. Steven Zhang's breach, Celgard has lost millions of m² of business
26 per year and lost an important competitive edge due to its competitor's acquisition of its trade
27 secrets, proprietary, and confidential information.
28

379. Celgard is entitled to recover such damages in an amount to be proven at trial. As a direct and proximate result of Dr. Steven Zhang's contractual breaches, Celgard has suffered additional damages.

Inducing Breach of Contract by Senior-China, Senior-California, Sun Town, Senior-California, and Global Venture

381. As set forth above, Dr. Steven Zhang and Celgard entered into a Nondisclosure Agreement, a valid contract, on or about July 18, 2005.

383. Senior-China, Senior-California, Sun Town and Global Venture intended to cause Dr. Steven Zhang to breach his agreement with Celgard so as to improve their products and take away Celgard's customers and/or unfairly compete with Celgard in the market.

385. Senior-China's, Senior-California's, Sun Town's and Global Venture's intentional acts have damaged and continue to damage Celgard in an amount to be determined at trial, of at least a reasonable royalty and/or lost profits that Celgard would have made but for Senior-China's,

1 Senior-California's, Sun Town's and Global Venture's inducing Dr. Steven Zhang's breach of his
2 agreement with Celgard.

3 386. In addition, the aforementioned acts of Senior-China, Senior-California, Sun Town
4 and Global Venture were done willfully and maliciously, and Celgard is entitled to punitive and
5 exemplary damages in an amount to be shown according to proof at trial.

6 JURY DEMAND

7 Pursuant to Civ. L.R. 3-6 and Fed. R. Civ. P. 38, Celgard hereby requests a trial by jury.

8 REQUEST FOR RELIEF

9 Celgard respectfully asks that the Court enter judgment in its favor as follows:

- 10 A. Judgment in favor of Celgard and against Defendants on each cause of action
11 alleged herein;
- 12 B. Finding that each Patent Defendant has infringed and is presently infringing the
13 Asserted Patents;
- 14 C. Finding that Patent Defendants' infringement of the Asserted Patents has been and
15 continues to be willful;
- 16 D. Finding that each Trade Secret Defendant has misappropriated Celgard trade
17 secrets;
- 18 E. Finding that each Trade Secret Defendant conspired against Celgard;
- 19 F. Finding that each Trade Secret Defendant committed acts of unfair competition
20 and unfair business practices under North Carolina and California laws;
- 21 G. Awarding Celgard damages adequate to compensate it for Patent Defendants' past
22 and present infringement, but in no event less than a reasonable royalty;
- 23 H. Awarding an accounting and supplemental damages for those acts of infringement
24 committed by Patent Defendants subsequent to the discovery cut-off date in this
25 action through the date Final Judgment is entered;
- 26 I. Ordering that damages for infringement of the Asserted Patent(s) be trebled as
27 provided for by 35 U.S.C. § 284 for Patent Defendants' willful infringement of the
28 Asserted Patents;

- 1 J. Finding that Dr. Steven Zhang breached the Non-Disclosure Agreement with
- 2 Celgard;
- 3 K. Finding that Senior-China, Senior-California, Sun Town, and Global Venture
- 4 induced Dr. Steven Zhang to breach the Non-Disclosure Agreement with Celgard;
- 5 L. That Celgard be awarded its full actual and consequential damages according to
- 6 proof at trial;
- 7 M. That Celgard be awarded Patent Defendants' restitution to the fullest extent
- 8 available under applicable law;
- 9 N. Finding that this case is exceptional;
- 10 O. Awarding Celgard its attorneys' fees and costs, together with prejudgment and
- 11 post-judgment interest;
- 12 P. An award of exemplary and enhanced damages against Patent Defendants, as well
- 13 as attorneys' fees and costs incurred in this action;
- 14 Q. An award of punitive and exemplary damages against Patent Defendants;
- 15 R. A preliminary and permanent injunction against Patent Defendants, and their
- 16 employees or representatives, and all persons acting in concert or participating
- 17 with them, pursuant to 35 U.S.C. § 283;
- 18 S. To the extent injunctive relief is not awarded, awarding Celgard damages adequate
- 19 to compensate Celgard for Patent Defendants' future infringement, but in no event
- 20 less than a reasonable royalty;
- 21 T. Enter a preliminary and permanent injunction pursuant to N.C. Gen. Stat. § 66-
- 22 154(a), Cal. Civ. Code. § 3426.2, and/or 18 U.S.C. § 1836(3)(A) and/or the
- 23 equitable powers of this Court, to prevent the Trade Secret Defendants from doing
- 24 the following:
- 25 a. Disclosing or using Celgard's trade secrets, proprietary, and/or confidential
- 26 information;
- 27 b. Making, testing, using, promoting, offering to sell, marketing,
- 28 commercializing, or selling separators or products of any kind that utilize,

embody, or were developed, in whole or in part, with the benefit or use of any of Celgard's trade secrets, proprietary, and/or confidential information in the U.S., or from importing into the U.S. such separators or products;

- c. Utilizing any processes or methods that are derived from, contain, or embody, in whole or in part, any of Celgard's trade secrets, proprietary, and/or confidential information;
- d. Submitting to or filing with any regulatory body, including but not limited to, the United States Patent and Trademark Office, any documents or other materials (in paper, electronic, or any other form) that are derived from, contain, embody, in whole or in part, any of Celgard's trade secrets, proprietary, and/or confidential information;

U. Immediately to preserve and return to Celgard (i) all copies of all Celgard documents and information, including without limitation any trade secrets, proprietary, and/or confidential information acquired from Celgard and documents and information containing Celgard trade secrets, proprietary, and/or confidential information; and (ii) all copies of all materials (in paper, electronic, or any other form) containing any, or derived from any, Celgard trade secrets, proprietary, and/or confidential information;

V. To identify each individual and entity to whom or to which the Trade Secret Defendants and any of their employees or representatives, and all persons acting in concert or participating with them, disclosed (i) any Celgard documents or other materials (in paper, electronic, or any other form) or (ii) any of Celgard's trade secrets, proprietary, and/or confidential information; and

W. To turn over to the Court any proceeds the Trade Secret Defendants have received from the misappropriation of Celgard's trade secrets, proprietary, and/or confidential information, which proceeds would be held in constructive trust until the conclusion of this litigation;

- 1 X. Award Celgard the maximum amount of monetary damages for trade secret
- 2 misappropriation available under federal law;
- 3 Y. Award Celgard the maximum amount of monetary damages for trade secret
- 4 misappropriation available under federal law, North Carolina law and California
- 5 law;
- 6 Z. Award Celgard treble damages pursuant to N.C. Gen. Stat. §§ 75-1.1 and 75-16;
- 7 AA. Award Celgard exemplary damages in an amount that is double the monetary
- 8 award pursuant to 18 U.S.C. § 1836(3)(c) for the willful and malicious
- 9 misappropriation of Celgard's trade secrets;
- 10 BB. Award Celgard punitive damages pursuant to N.C. Gen. Stat. § 1D for the Trade
- 11 Secret Defendants' willful and wanton concealment of their unlawful actions to
- 12 create a profit for Senior;
- 13 CC. That Celgard be awarded punitive, enhanced, and/or exemplary damages,
- 14 including but not limited to at least doubled damages and unjust enrichment under
- 15 Cal. Civ. Code § 3426, to the fullest extent available under applicable law;
- 16 DD. Award Celgard its costs, expenses, and fees, including reasonable attorneys' fees
- 17 in this action, pursuant to at least N.C. Gen. Stat. § 75-16.1 and/or other applicable
- 18 laws;
- 19 EE. That Celgard be awarded damages pursuant to California Business and Professions
- 20 Code Sections 17200 *et seq.*
- 21 FF. Award Celgard pre- and post-judgment interest at the maximum rate allowed by
- 22 law;
- 23 GG. To the extent injunctive relief is not awarded, awarding Celgard damages adequate
- 24 to compensate Celgard for the Trade Secret Defendants' future misappropriations,
- 25 and any uses of Celgard's trade secrets, proprietary, and confidential information;
- 26 and
- 27 HH. Any further relief that this Court deems just and proper.
- 28

DATED: January 7, 2022

Respectfully submitted,

By: /s/ Bryan J. Vogel
Bryan J. Vogel (*pro hac vice*)

**ATTORNEYS FOR PLAINTIFF
CELGARD, LLC**

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